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9 Otto 263
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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

No. 109.

JOHN VANSANT, WILLIAM A. DUNCAN, TRUSTEE FOR SUSAN A. DUNCAN, APPELLANTS,

vs.

THE ELECTRO-MAGNETIC GAS-LIGHT COMPANY, AND JOHN W. THOMPSON, JOHN G. PARKE, T. L. CASEY, JOHN A. RUFF, WILLIAM MYERS, MADISON DAVIS, A. A. HOSMER, WILLIAM THOMPSON, AND GEORGE A. McILHENNY.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

FILED APRIL 15, 1876.

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No. 109.

JOHN VANSANT, WILLIAM A. DUNCAN, TRUSTEE FOR SUSAN A. DUNCAN, APPELLANTS,

vs.

THE ELECTRO-MAGNETIC GAS-LIGHT COMPANY, AND JOHN W. THOMPSON, JOHN G. PARKE, T. L. CASEY, JOHN A. RUFF, WILLIAM MYERS, MADISON DAVIS, A. A. HOSMER, WILLIAM THOMPSON, AND GEORGE A. McILHENNY.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

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able for any expense or cause whatever, except to maintain the interest of the company in said patents and for the purchase of any patent or patents which the company might determine to be advantageous, and on further conditions therein set forth; all of which more fully and at large appears by reference to a copy of the original agreement, signed by all the parties & made part hereof, lettered A, and recorded in the Patent-Office January 14, 1874.

Third. That the defendant corporation, the Electro-Magnetic Gas-Lighting Company, is the outgrowth of the agreement set forth in the preceding section of the bill, and has received, accepted, & recorded the assignment made by plaintiffs to John W. Thompson & others, as therein alleged. And it has adopted the said agreement in full & in all its parts, so that the nine persons mentioned, together with the
4 plaintiff John Vansant, in his own right and as attorney in fact of William A. Duncan, trustee for Susan A. Duncan, compose all the parties interested in the said corporation either as trustees, stockholders, or otherwise. And plaintiffs make also a part hereof a copy of the incorporation certificate required by the act of Congress before alluded to and lettered C.

Fourth. That on or about December 20, 1873, the defendant corporation, after having tried, about one year before, experiments only partially successful, and acting by its president, John W. Thompson one, of the nine persons to whom plaintiff's patents had been assigned, and a defendant herein, did, in conformity to the agreement above set forth in articles second & third of this bill, & by the aid of certain subsequent improvements made by the plaintiff, John Vansant, make, at the cost & expense of the company, a due & reasonable trial or experiment of plaintiff's apparatus for lighting and extinguishing gas by electricity, and invited the public to a practical exhibition thereof on a large scale; the experiment was in every way a success, and street lamps on K street, in this city, for a distance of one mile, were instantaneously lighted & extinguished by plaintiff's patented apparatus several times from a station near one end of the line; and these lamps were, by the same means, successfully lighted & extinguished, evenings & mornings, fully thirty times during a period of one calendar month. Yet, in violation
5 of justice & right, & of the agreements set forth in the second & third articles of this bill, the defendant corporation, by its officers & a majority of its directors, has refused, illegally & wrongfully, & contrary to fact, to determine & declare the experiment satisfactory; and though thereunto amicably requested, decline & refuse to pay the moneys called for by their contract & agreement of July 24, 1872, or to issue to plaintiffs the full paid-up shares to the number of fifty therein set forth, or to reassign to plaintiffs the interests in the aforesaid patents set forth in agreement lettered A, made part hereof.

Fifth. That the plaintiffs entered into the contracts above set forth for the purpose of putting into practical operation their patented inventions, believing that this could be better accomplished by the influence and energy of a company than by their individual efforts, and that their patent-rights would be better protected from infringement, and, moreover, because plaintiffs were unable to introduce these inventions & patents into general use because of their want of the means requisite for this purpose. That they risked their patents already obtained, as well as those that might be thereafter invented & obtained by them, upon the success of the experiment on a large scale to be made by the defendants, though plaintiffs only offered, proposed, & intended to risk the undivided one-half part of said patents & inventions. And though

6 this experiment has, in their opinion, proved successful, and though the defendants decline & refuse to declare it so and comply with the other terms of their agreement, and though by their continued inaction they impose on plaintiffs an irreparable injury by withholding from them & the public the benefits resulting from their patented inventions as aforesaid, and though they evidently intend to proceed no further in continuing to perform their agreements, and although they are in perpetual violation of the law in not having their capital stock paid up, and the consequent liability of the corporation to be dissolved at any time, yet they refuse to perform their obligations as assumed by them in Document B, and to come to any equitable settlement with plaintiffs, and to put themselves into a position to attain these results by calling upon each other & the shareholders to pay up their shares; but they persist in demanding from plaintiffs the amount expended by them in trying the experiments as aforesaid before they will transfer back to plaintiffs the title to the patents set forth in Documents A, B, C, and D, made part hereof.

Sixth. That the effect of the aforesaid contracts, made part hereof & lettered A, B, C, and D, was that of an executed sale, subject to a resolutory condition, namely, that the experiments to be made at defendants' expense should be successful. If this condition has been accomplished, the defendants now owe to the plaintiffs the full & entire performance of the conditions in plaintiffs' favor contained in contract A,
7 made part hereof: and if not, plaintiffs are entitled to a return of the patent-rights "without any incumbrance, lien, or condition annexed thereto." That if the experiments are failures, as the defendants contend, then they have no right to detain from plaintiffs their patent-rights & refuse, as they do, to reassign them, unless plaintiffs pay the sum of nearly $4,000.00 alleged by defendants to have been expended by them in the trial of the experiments, because the contracts are not rightfully susceptible of this interpretation, and because they show the real contract to be an assignment of plaintiffs' interest in the patents to the extent only of one-half, the other half being represented by the $5,000.00 of paid-up shares which were to have been issued & delivered to petitioners.

Seventh. That the certificate of defendant corporation under the act of Congress, contains the name & signature of John Vansant, one of the plaintiffs herein, who both state that he joined the nine trustees in organizing the company to facilitate & carry out the terms & conditions of their agreements, and to receive, whenever demanded, the fifty shares of full paid stock. Plaintiffs, where under the impression that all the nine named persons of the second part in contract A had signed the said certificate, but they find from the copy of the record that two
8 have not signed, to wit, A. A. Hosmer and Madison Davis. And that for reasons assigned in this and the previous articles of this bill, an immediate dissolution of this corporation should be decreed by this hon. court.

The plaintiffs therefore pray as follows:

I. That all the defendants be condemned jointly & severally to reassign to petitioners all their right, title, and interest in and to the patent-rights set forth & described in the second paragraph of this bill free from any encumbrance, lien, or condition whatever, and in a form to be approved by the court.

II. That the Electro-Magnetic Gas-Lighting Company be decreed an unlawful corporation & put into liquidation, and into the hands of a receiver.

III. That judgment be rendered in favor of petitioner Vansant, freeing him from all personal liability for any debts incurred by said corporation from & after filing this bill.

IV. That plaintiffs may have general relief.

V. That this honorable court will grant the plaintiffs the writ of subpœna to the said defendants in the usual form directed.

And as in duty bound &c., &c.

I, John Vansant, do swear that I have read the foregoing bill of complaint, signed by me for self and William A. Duncan, trustee for
9 Susan A. Duncan; that I know the contents thereof, and that the several matters therein stated as of my personal knowledge are true, and those stated on information & belief I believe to be true.

JOHN VANSANT.

Subscribed and sworn to before me this 1st day of May, A. D. 1874.

R. J. MEIGS, *Clerk*,
By L. C. WILLIAMS,
Ass't Clerk.

Filed May 1, 1874.

EXHIBIT A.

(Copy.)

Received for record Jan. 14th, 1874, and recorded in liber P 17, page 9, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

{ SEAL OF THE PATENT OFFICE. } (Signed) W. D. LEGGETT, *Commissioner.*

[Internal-revenue stamp 10, c'ts.]

Articles of agreement made & entered into the 24th day of July, A. D. 1874, by and between John Vansant, of the city of San Francisco, in the State of California, both in his own right and as attorney
10 in fact duly appointed and authorized for William A. Duncan, trustee for Susan A. Duncan, as per power of attorney hereunto annexed, of the first part, and J. W. Thompson, Jno. G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, all of the city of Washington, in the District of Columbia, parties of the second part.

Whereas the said party of the first part is the patentee of certain letters patent issued to him by the Government of the United States for "apparatus for lighting and extinguishing gas by electricity," and numbered as patents 113370, 120469, 124773, and 127000, and has made full & complete assignment of all interest & right thereto to said parties of the second part, both in and of his own right, and as attorney in fact for William A. Duncan, trustee of Susan A. Duncan, as reference to said assignment, bearing even date herewith, will more fully show.

Now, this agreement witnesseth: That for and in consideration of the premises, the said party of the second part do hereby agree to make or cause to be made, at their cost and expense, to the amount of two thousand and five hundred ($2,500) dollars in expenditure, due & reasonable trial or experiment of said apparatus, to prove the utility & prac-
11 tical value thereof, and to well & truly pay or cause to be paid unto the said party of the first part, for his own use and to the

use of his said constituent, the sum of three thousand ($3,000) dollars at the end of thirty (30) days after such said experiment shall have been determined and declared satisfactory by the said party of the second part or their assigns; and the said second party further agree to pay or cause to be paid unto the said first party, to his own use and to the use of his said constituent, the further sum of three thousand ($3,000) dollars out of any sum or sums of money that may be first received by them, the said second party, arising as profits by reason of any sale of, adventure in, or contract for the use of the patents herein named.

And whereas it is intended by the parties hereto to form a joint stock company for the purpose of putting to use the apparatus before mentioned, which said company shall have a stated capital of ten thousand dollars, divided into one hundred shares of stock of given value of one hundred dollars each, of which stock the said second party agree to deliver, or cause to be delivered, unto the said first party fifty shares,
12 which said fifty shares of stock shall be issued in the name of the first party, to his own use and to the use of the said constituent, or said stock shall be issued in certain proportions in the name of either, as may be designated by directions in writing, signed & sealed by the first party and his constituent; and further, that the said fifty shares of stock shall be issued as fully paid for, and non-assessable for any expense or cause whatever, except to maintain and defend the interest of said company in said patents, and for the purchase of any patent or patents which may be determined by said company to be advantageous, and on the further condition that until the lapse of five (5) years from the date of issuing of the same, said fifty shares of stock shall be entitled to vote as follows: The shares numbered one (1) to ten (10), inclusive, shall be entitled to one vote each, and of the succeeding shares, numbers eleven to fifty, inclusive, any four (4) shares shall be entitled to one vote.

And the said John Vansant, as against the rights of the said William A. Duncan, trustee of Susan A. Duncan, by reason of the premises, shall, from time to time, and at all times hereafter, well and sufficiently save, defend, keep harmless, and indemnify the said second parties, their assigns, administrators, or executors, of and from all actions, suits,
payments, costs, charges, and damages for or by reason of any
13 interest, right, claim, or demands arising or that may arise by reason of any assignment of certain interest in said recited patents, made by the first party to said William A. Duncan as trustee of Susan A. Duncan; and the said parties hereby bind themselves, their heirs, executors, administrators, and assigns, for the performance of all and every of the above agreement, as witness their hands & seals the day and year first above written.

(Signed) JNO. VANSANT, [SEAL.]
In his own right and as attorney in fact for Wm A. Duncan, Trustee, &c.
J. W. THOMPSON. [SEAL.]
JNO. G. PARKE. [SEAL.]
T. L. CASEY. [SEAL.]
JOHN A. RUFF. [SEAL.]
WM MYERS. [SEAL.]
GEO. A. McILHENNY. [SEAL.]
A. A. HOSMER. [SEAL.]
WM THOMPSON. [SEAL.]
MADISON DAVIS. [SEAL.]

Exhibit B.—Filed May 1, 1874.

(Copy.)

Received for record Jan'y 14, 1874, and recorded in liber P 17, page 13, of transfers of patents.

14 In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL OF THE PATENT OFFICE.] (Signed) W. P. LEGGETT,
Commissioner.

To whom it may concern:

Whereas letters patent of the United States for certain improvements in electro gas lighting and extinguishing apparatus were issued to John Vansant, of San Francisco, California, bearing date respectively April 4, 1871, October 31, 1871, March 19, 1872, and May 21, 1872, and numbered respectively, 113370, 120469, 124773, and 127000; and whereas by assignment duly executed, bearing date the 24th day of July, 1872, and recorded in the records of the U. S. Patent Office, at Washington, D. C., in liber W, page 35, of transfers of patents, the said recited patents became vested in the undersigned: and whereas the "Electro Magnetic Gas Lighting Company," of Washington, D. C., is desirous of purchasing the above recited patents: Now, therefore, in consideration of the sum of one dollar to us in hand paid and other valid considerations moving thereto, we, the undersigned, do hereby sell, convey, and transfer to the "Electro Magnetic Lighting Company" of Washington City, District of Columbia, and unto its successors or as-

15 signs, all & singular the right, title, and interests which we possess in and to said letters patent respectively, and to the several inventions mentioned & specified therein.

And further, we do hereby sell and transfer to the said "Electro Magnetic Gas Lighting Company," its successors or assigns, all right of invention to any & all improvements which may hereafter be made or invented to the devices mentioned in said letters patent, respectively, whether the same shall be patented or otherwise, and also all rights & privileges which may hereafter be granted upon and by any extension of said letters patents, or any one or more of them; subject, nevertheless, to the obligations and reservations mentioned and contained in said above-recited assignments of patents, bearing date the 24th day of July, 1872, and subject also to the true & just performance of all & singular the obligations & agreements contained in that certain article of agreement bearing date the 24th day of July, 1872, wherein John Vansant is party of the first part, and the parties undersigned are of the second part, which said referred to reservations & obligations the said Electro Magnetic Gas Lighting Company shall respect & fully comply with, as by said instruments of writing the same are stated or intended.

16 In witness whereof we have hereunto set our hands and affixed our seals this the twenty-fourth day of February, A. D. 1873.

(Signed)

J. W. THOMPSON.	[SEAL.]
THO. LINCOLN CASEY.	[SEAL.]
JNO. G. PARKE.	[SEAL.]
JOHN A. RUFF.	[SEAL.]
W'M THOMPSON.	[SEAL.]
GEO. A. McILHENNY.	[SEAL.]
W'M MYERS.	[SEAL.]
A. A. HOSMER.	[SEAL.]
MADISON DAVIS.	[SEAL.]

In presence of—
(Signed) JNO. VANSANT.

Exhibit C.—Filed May 1, 1874.

(Copy.)

Incorporation certificate of the Electro-Magnetic Gas Lighting Company. Recorded July 26, 1872.
Delivered to J. W. Thompson, July 29, 1872.

Know all men by these presents, and these presents are to certify that J. W. Thompson, John Vansant, Jno. G. Parks, T. L. Casey, John A. Ruff, A. A. Hosmer, George A. McIlhenny, William Thompson, Madison Davis, William Myers, being desirous of forming a body politic & corporate under the powers granted by the fourth section of an act of the Congress of the United States entitled "An act to provide
17 for the creation of corporations in the District of Columbia by general law," approved May fifth, eighteen hundred and seventy, have in accordance with the provisions thereof, formed themselves into a company to be known and styled the "Electro-Magnetic Gas Lighting Company." That the objects for which said company is formed are the turning on, lighting, and extinguishing gas in the street-lamps, or elsewhere, by the use of electro currents, under the patents of John Vansant, or any other patents they may secure, and for the manufacture, sale, and application of any and all apparatus, or machinery needed and proper for the said purposes, and also for the sale of the right to use any or all of said patents, for the purposes aforesaid. That the amount of the capital stock of said company is ten thousand dollars, divided into one hundred shares of one hundred dollars each. That the period for which said company is formed is twenty years from the date of this paper. That the trustees of said company will be of the number of nine persons, and that their names are as follows: J. W. Thompson, John Vansant, Jno. G. Parke, T. L. Casey, John A. Ruff, A. A. Hosmer, George A. McIlhenny, William Thompson, Madison Davis, all stockholders of said company, and a majority of whom are citizens of the District of Columbia. That the place in said District of Columbia in which the operations of said company are to be carried on is the city of Washington.
18 In witness whereof we, the aforesaid persons desirous of forming said company, have hereunto attached our names & seals this twenty-fourth (24) day of July, in the year of our Lord one thousand eight hundred and seventy-two.

(Signed)	JOHN VANSANT.	[SEAL.]
	T. L. CASEY.	[SEAL.]
	GEO. A. McILHENNY.	[SEAL.]
	W'M MYERS.	[SEAL.]
(Signed)	J. W. THOMPSON.	[SEAL.]
	JNO. G. PARKE.	[SEAL.]
	JOHN A. RUFF.	[SEAL.]
	W'M THOMPSON.	[SEAL.]

DISTRICT OF COLUMBIA,
County of Washington, ss:

Be it remembered that this twenty-fourth (24) day of July, A. D. 1872 before me, the undersigned, a notary public in and for the district and county aforesaid, personally came the within-named persons, to wit: J. W. Thompson, Jno. Vansant, Jno. G. Parke, T. L. Casey, John A. Ruff, A. A. Hosmer, George A. McIlhenny, Madison Davis, W'm Thompson,

and W'm Myers, who are known to me to be the same persons whose names are subscribed to the within instrument of writing, and acknowledged the same to be their act and deed, and for the purposes therein mentioned.

In witness whereof I have hereto set my hand and affixed my official seal the day and year above written.

[NOT'L SEAL.] (Signed) S. W. RITTENHOUSE,
Notary Public.

19 *Exhibit D.—Filed May* 1, 1874.

(Copy.)

U. S. PATENT OFFICE.

Received for record July 30th, 1872, and recorded in liber W 15, page 35, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL OF THE PATENT OFFICE.] JNO. THACHER,
Acting Com'r of Patents.

To whom it may concern:

Whereas letters-patent of the United States for certain improvements in electro gas-lighting and extinguishing apparatus were issued to the undersigned, John Vansant, of San Francisco, of the State of California, bearing date, respectively, April 4, 1871, October 31, 1871, March 19, 1872, and May 21, 1872, and numbered, respectively, 113370, 120469, 124773, and 127000; and whereas J. W. Thompson, Jno. G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, of the city of Washington, D. C., are desirous of purchasing the same:

20 Now, therefore, in consideration of the premises and of one dollar, to me in hand paid, and other valid considerations moving thereto, I, the aforesaid John Vansant, both in my own right and as attorney in fact, duly appointed & authorized, for William A. Duncan, trustee for Susan A. Duncan, as per power of attorney, hereunto annexed, do hereby sell, convey, and transfer to the above-named Thompson, Parke, Casey, Ruff, Myers, Davis, Hosmer, Thompson, and McIlhenny, and to their heirs and assigns, all and singular the right, title, and interest which I possess both in my own right and as att'y in fact as aforesaid in and to said letters-patent, respectively, and to the several inventions mentioned & specified therein; and, further, for the consideration aforesaid and in the rights aforesaid, do hereby sell and transfer to the parties above named as assignees all right of invention to any & all improvements which I may hereafter invent or make to the devices mentioned in said letters-patent respectively, whether the same shall be patented or otherwise; and I hereby, in like rights & capacity, personal & fiduciary, assign and transfer to said assignees all & singular the rights & privileges which may hereafter be granted to me upon & by any extensions of said letters patent or any one or more of them.

Reserving, nevertheless, unto myself the privilege of using the device & apparatus described & set forth in claim one of letters-
21 patent number 120469 in and for such other devices or machines as I may see fit, providing that such use and application do not in any way interfere or infringe on the rights of said assignees as here intended.

In witness whereof I have hereunto set my hand & seal this the 24th day of July, A. D. 1872.

(Signed) JOHN VANSANT, [SEAL.]
In my own right and as Att'y in Fact for W'm A. Duncan, Tr. for Susan A. Duncan.

In presence of—
(Signed) PHILIP C. MOSI,
J. C. SMITH.

[Internal-revenue stamp, 5 c'ts.]

Answer.—Filed July 13, 1874.

In the supreme court of the District of Columbia.

JOHN VANSANT & WILLIAM A. DUNCAN, TRUSTEE for Susan A. Vansant, plaintiffs,
vs.
THE ELECTRO-MAGNETIC GAS LIGHTING COMpany and John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, W'm Myers, Madison Davis, A. A. Hosmer, W'm Thompson, and Geo. A. McIlhenny, defendants.
In equity. No. 3707, doc. 13.

22 The joint and several answer of the above-named defendants to the bill of complaint of the above-named plaintiffs.

In answer to said bill of complaint the said defendants say as follows:

First. They admit that the said John Vansant is a resident of the city of Washington, D. C.; that the said William A. Duncan is a resident & citizen of the State of Virginia; that the Electro-Magnetic Gas-Lighting Company was incorporated at the time, in the manner, and under the authority stated in said bill of complaint, and that all the others of said defendants reside in said city of Washington or its vicinity.

Second. They admit that the said John Vansant is the original patentee of the patents particularly described and designated by their numbers in the second paragraph of said bill; that contemporaneously with the creation of the said corporation defendant, to wit, on the 24th day of July, 1872, the plaintiffs made a complete and absolute sale, transfer, & assignment to the said John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny of all & singular their right, title, & interest in and to the letters-patent described & designated by their respective numbers in said bill of complaint, & all rights of invention to any & all improvements which the said John Vansant should afterwards invent or make in the devices mentioned in said letters-patent, & all the rights & privileges which might thereafter be
23 granted to the said John Vansant upon & by any extension of said letters-patent or any one or more of them, as will appear by the said plaintiffs' assignment accompanying said bill of complaint as an exhibit and lettered D. They admit that on the said twenty-fourth day of July, 1872, the said defendants to whom said assignment & transfer was made, entered into an agreement with the said plaintiffs, a copy of which accompanies said bill of complaint and is lettered A. The ob-

and W'm Myers, who are known to me to be the same persons whose names are subscribed to the within instrument of writing, and acknowledged the same to be their act and deed, and for the purposes therein mentioned.

In witness whereof I have hereto set my hand and affixed my official seal the day and year above written.

[NOT'L SEAL.] (Signed) S. W. RITTENHOUSE,
Notary Public.

19 *Exhibit D.—Filed May* 1, 1874.

(Copy.)

U. S. PATENT OFFICE.

Received for record July 30th, 1872, and recorded in liber W 15, page 35, of transfers of patents.

In testimony whereof I have caused the seal of the Patent Office to be hereunto affixed.

[SEAL OF THE PATENT OFFICE.] JNO. THACHER,
Acting Com'r of Patents.

To whom it may concern:

Whereas letters-patent of the United States for certain improvements in electro gas-lighting and extinguishing apparatus were issued to the undersigned, John Vansant, of San Francisco, of the State of California, bearing date, respectively, April 4, 1871, October 31, 1871, March 19, 1872, and May 21, 1872, and numbered, respectively, 113370, 120469, 124773, and 127000; and whereas J. W. Thompson, Jno. G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, of the city of Washington, D. C., are desirous of purchasing the same:

20 Now, therefore, in consideration of the premises and of one dollar, to me in hand paid, and other valid considerations moving thereto, I, the aforesaid John Vansant, both in my own right and as attorney in fact, duly appointed & authorized, for William A. Duncan, trustee for Susan A. Duncan, as per power of attorney, hereunto annexed, do hereby sell, convey, and transfer to the above-named Thompson, Parke, Casey, Ruff, Myers, Davis, Hosmer, Thompson, and McIlhenny, and to their heirs and assigns, all and singular the right, title, and interest which I possess both in my own right and as att'y in fact as aforesaid in and to said letters-patent, respectively, and to the several inventions mentioned & specified therein; and, further, for the consideration aforesaid and in the rights aforesaid, do hereby sell and transfer to the parties above named as assignees all right of invention to any & all improvements which I may hereafter invent or make to the devices mentioned in said letters-patent respectively, whether the same shall be patented or otherwise; and I hereby, in like rights & capacity, personal & fiduciary, assign and transfer to said assignees all & singular the rights & privileges which may hereafter be granted to me upon & by any extensions of said letters patent or any one or more of them.

Reserving, nevertheless, unto myself the privilege of using the device & apparatus described & set forth in claim one of letters-
21 patent number 120469 in and for such other devices or machines as I may see fit, providing that such use and application do not in any way interfere or infringe on the rights of said assignees as here intended.

In witness whereof I have hereunto set my hand & seal this the 24th day of July, A. D. 1872.

(Signed) JOHN VANSANT, [SEAL.]
In my own right and as Att'y in Fact for W'm A. Duncan, Tr. for Susan A. Duncan.

In presence of—
(Signed) PHILIP C. MOSI,
J. C. SMITH.

[Internal-revenue stamp, 5 c'ts.]

Answer.—Filed July 13, 1874.

In the supreme court of the District of Columbia.

JOHN VANSANT & WILLIAM A. DUNCAN, TRUSTEE for Susan A. Vansant, plaintiffs,
vs.
THE ELECTRO-MAGNETIC GAS LIGHTING COMPANY and John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, W'm Myers, Madison Davis, A. A. Hosmer, W'm Thompson, and Geo. A. McIlhenny, defendants.
} In equity. No. 3707, doc. 13.

22 The joint and several answer of the above-named defendants to the bill of complaint of the above-named plaintiffs.

In answer to said bill of complaint the said defendants say as follows:

First. They admit that the said John Vansant is a resident of the city of Washington, D. C.; that the said William A. Duncan is a resident & citizen of the State of Virginia; that the Electro-Magnetic Gas-Lighting Company was incorporated at the time, in the manner, and under the authority stated in said bill of complaint, and that all the others of said defendants reside in said city of Washington or its vicinity.

Second. They admit that the said John Vansant is the original patentee of the patents particularly described and designated by their numbers in the second paragraph of said bill; that contemporaneously with the creation of the said corporation defendant, to wit, on the 24th day of July, 1872, the plaintiffs made a complete and absolute sale, transfer, & assignment to the said John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny of all & singular their right, title, & interest in and to the letters-patent described & designated by their respective numbers in said bill of complaint, & all rights of invention to any & all improvements which the said John Vansant should afterwards invent or make in the devices mentioned in said letters-patent, & all the rights & privileges which might thereafter be
23 granted to the said John Vansant upon & by any extension of said letters-patent or any one or more of them, as will appear by the said plaintiffs' assignment accompanying said bill of complaint as an exhibit and lettered D. They admit that on the said twenty-fourth day of July, 1872, the said defendants to whom said assignment & transfer was made, entered into an agreement with the said plaintiffs, a copy of which accompanies said bill of complaint and is lettered A. The ob-

ligations on said nine individual defendants by said agreement are more distinctly & accurately apparent from said document and the copy of the same, than from the allegations made by the plaintiffs' bill in the second paragraph thereof, and the defendants refer to said copy & make it a part of this their answer with special reference to the allegations in said bill; that said nine individual defendants by said writing "agreed to expend twenty-five hundred dollars in a trial of plaintiffs' apparatus," whereas the agreement itself was to make or cause to be made at their cost & expense to the amount of twenty-five hundred ($2,500) dollars in expenditure, due & reasonable trial or experi-
24 ment of said apparatus to prove the utility & practical value thereof"; the defendants admit that said agreement is in other respects correctly described in said second paragraph of said bill of complaint.

Third. They admit that the corporation defendant, the Electro-Magnetic Gas-Lighting Company was created in pursuance of last mentioned agreement; that it is subject to the condition & obligations created & defined by said agreement & assignment; that the said nine individual defendants and the persons named in the third paragraph of said bill of complaint comprise all the persons interested in said corporation either as trustees or stockholders, and that the paper accompanying said bill and lettered C is a true copy of the certificate of incorporation issued to said company.

Fourth. They admit that the corporation defendant did on or about the 20th of December, 1873, at its own cost & expense, make a trial of certain apparatus of the plaintiffs for lighting and extinguishing gas by electricity, and that said trial & experiments were made with lamps located on K street, in said city of Washington, for a distance of one mile. But they, and each of them, deny that said trial and experiment
25 was made in pursuance of the agreement set forth in the second & third paragraph of the plaintiffs' bill of complaint, and they deny that said trial & experiment was in every way, or in any way satisfactory. They admit that they have refused to determine and declare said trial & experiment satisfactory, and that they have declined & refused to pay the moneys mentioned in said contract & agreement of July 24th, 1872, and to issue to the plaintiffs the full paid up shares of the stock of said corporation to the number of fifty shares, and that they have also refused to reassign said patents to the plaintiffs, except upon the terms and conditions hereinafter set forth, but they deny that said refusals or any of them have been or were made illegally, or wrongfully, or contrary to fact, and in violation of the agreements set forth in the second and third paragraphs of said bill of complaint.

Fifth. The defendants, except from the plaintiffs' statements, have no knowledge of the motives which influenced the plaintiffs in the conduct which is described in the bill of complaint, but they have no reason to doubt that the fifth paragraph of said bill truthfully states what the plaintiffs' real motives were. They, however, do not consider the statements concerning the same in any way material or important. They, however, deny that they refuse to perform the obligations assumed by them in the document lettered B, according to the true intent &
26 meaning of said document & of said contracts, and they deny that they refuse to come to any equitable settlement with the plaintiffs. They admit that they have demanded from the plaintiffs the return of the amount expended by them in the trials & experiments relative to said apparatus and to said inventions as a condition of the reassignment to the plaintiffs of said patent rights and interests, and they aver that

their said demand is fully justified by said contracts, and by the facts now to be narrated.

Sixth. They aver that the distinctive feature of the plan for lighting street lamps by means of electricity which was presented to the individual defendants herein by the said plaintiff, John Vansant, in the summer of the year 1872 were, first, that the wires conducting the current of ordinary voltaic electricity from lamp to lamp were to pass under ground; and, second, that the induced electric current was to be generated at each lamp by arranging a small induction coil immediately adjacent thereto. At the time the said plaintiff Vansant called the attention of the individual defendants to the patents referred to in said bill of complaint and solicited aid and co operation in developing his
27 invention, he, the said Vansant, informed the said defendants that he had been experimenting with his processes in Boston and had became satisfied that as his apparatus was then constructed lamps could not be lighted if the wires passed under ground, but that he, the said Vansant, had made a discovery by means of which the difficulties previously encountered would be obviated and the desired result effected through subterranean conductors. The alleged discovery had not at that time been practically tested, although the explanation made by the said Vansant concerning the same were thought satisfactory. The said plaintiff, Vansant, stated that he needed money to test and to develop his said discovery, and the proposed business association which was the subject of discussion between the said plaintiff, Vansant, and the nine individual defendants, and the agreements which were finally entered into and which are referred to in the plaintiff's bill of complaint, and the prospective business of said corporation, related wholly & exclusively to the development & practical use of an apparatus and of a process, or processes, for lighting the street lamps of a city by means of electricity conveyed by wires placed under the surface of the
28 ground.

After said agreements were entered into and after the creation of said corporation, various sums of money, amounting in the aggregate to the sum of $2,500, were paid by the defendants under the terms of said agreement, and were used under the general direction of the plaintiff, Vansant, in developing said invention, and in the purchase of materials, and in making experiments to ascertain whether or not said inventions could be made to accomplish with certainty and economy the desired results, and whether or not they could be made the subject of legitimate mercantile adventure & investment. After a considerable quantity of costly material and a number of expensive lamps had been obtained, an experiment was tried, on or about the day of , at the gas works in the city of Washington, which was in its results an utter failure, and demonstrated with such conclusiveness as to convince the said plaintiff, Vansant, that his processes & inventions for lighting the street lamps of a city by electricity conveyed by wires running under ground were wholly ineffectual and without any practical value whatever in an economic & industrial sense.

29 The defendants further aver that said last mentioned trial & experiment was the trial and experiment referred to in said agreement; that the same were fairly made; that they were wholly unsatisfactory to the said defendants and to the said Vansant. When said result became known the defendants abandoned their purpose to engage in any business operations with reference to said patents, and considered said agreement terminated by its own provisions & conditions, and they claim that because said trial & experiment was unsatisfactory, the

said defendants, & each & every of them, are not now & have not at any time been under obligation to pay said sum of three thousand dollars or any other sum to the said plaintiff, Vansant, or to said plaintiffs, and are not & have not been under obligation to deliver said shares of stock in said company; and that said other sum of $3,000 has never became due & payable to the said plaintiffs, or either of them, because no sum or sums of money have ever been received as profits by reason of any sale of, or adventure in, or contract for the use of the patents named in said contracts. After the failure of said experiment the said defendants were induced by the representations of the plaintiff, Vansant, and
30 by their own desire to see what, if any, use could be made of said inventions under conditions other than those contemplated by said defendants in said agreements, to advance considerable sums of money for the trial of other experiments by means of wires passing above the ground. It was with the money thus advanced that the lamps mentioned in the bill of complaint were erected on K street and connected with wires passing through the air & supported by poles, instead of being conveyed under ground. Even this experiment was unsatisfactory, and demonstrated that the said plaintiff's invention could not be used in lighting the lamps of a city even if the conducting wires could be suspended in the air, inasmuch as during the experiments, which continued for thirty days, there was no one occasion on which all the lamps along the route described in the bill were lighted by the said plaintiff's process.

The defendants, however, aver that said test and experiment was not the test and experiment provided for by said agreement, and that the said defendants never contemplated the use or sale, or the formation of any company to promote the use or sale, of any invention
31 for lighting street lamps by wires passing above ground, inasmuch as it was obviously impracticable to use or sell an invention which would cover the city with a net-work of wires elevated above the ground at no greater height than the height of a lamp-post. In said last-mentioned tests and experiments, the defendants expended about the sum of $1,400 in excess of said sum of $2,500 provided for in said agreement.

Seventh. The said assignment, as appears by the terms thereof, was an absolute transfer and sale to the said nine individual defendants of the rights and interests therein described. The consideration therefor was the expenditure by the said defendants of the said sum of two thousand five hundred dollars in the manner aforesaid. The condition specified in said agreement, namely, that the experiments to be made should be satisfactory, did not apply to or affect said sale, but only designated the contingency on the happening of which the said defendants should be required to pay the additional sums of money mentioned in said agreement. The defendants admit that if said first-mentioned experiment and trial had proved satisfactory, they would now owe the plaintiffs the full & entire performance of the condition in plaint-
32 iffs' favor contained in said agreement. They deny, however, that, according to the true meaning of said contracts, the said plaintiffs are now entitled to a return of said patent-rights without any encumbrances, lien, or condition annexed thereto.

The defendants further aver that said sum of $2,500, and said other sum of about $1,400, contributed by the defendants, were used by the plaintiff, Vansant, in the perfection & development of his inventions, and in making experiments which suggested to him, the said Vansant, various devices & improvements in his apparatus, for some of which he has obtained a patent, which is numbered 139692, and was issued on

the 10th of June, 1873, and for others of which he has filed various caveats in the United States Patent Office, and that of said patent & of all the improvements in said invention the defendants are the owners under said assignment.

The defendants also claim that for said advance & contributions, which were used in experimenting upon and in the development of said inventions & independently of said agreements & contracts, the defendants have a lien on said patents and are entitled to be repaid their said advance.

Eighth. The defendants aver that, although they are under no
33 legal obligation so to do, they have repeatedly offered & now tender themselves ready to reconvey to the said plaintiffs said patents on the repayment to them of the sums of money so advanced as aforesaid. They have also offered to convey said patents to any person the plaintiffs should name, to be held in trust to repay the defe'dants the sums advanced by them as aforesaid out of the first profits that may be realized by the sale of said patents.

Ninth. The defendants admit that the said plaintiff, John Vansant, signed said certificate of incorporation and became one of the incorporators in said company, and that said defendants, Hosmer & Davis, did not sign said certificate. They also admit that in consequence of the said result of the trial of said experiment, and because the contingency upon which said corporation was to enter on its business did not happen, the capital stock of said company has not been paid up. They aver, however, that there are no debts or demands existing against said company.

The defendants, further answering, pray that they may have the same benefit & advantage by this answer as he might have if he demurred
34 to said bill of complaint for its numerous insufficiencies and imperfections, and especially with reference to the prayer in said bill for the dissolution of said corporation and the allegations relative thereto.

And having fully answered, the defendants pray that they may be hence dismissed with their reasonable costs and charges.

THE ELECTRO-MAGNETIC GAS LIGHTING CO.,
By J. W. THOMPSON,
President.
J. W. THOMPSON,
For self and other Defendants.

NATH'L WILSON,
Sol. for Def'ts.

I, J. W. Thompson, do solemnly swear that I have read the answer by me subscribed and know the contents thereof, and that the facts therein stated upon my personal knowledge are true, and that the facts therein stated upon information and belief I believe to be true.

J. W. THOMPSON.

Sworn and subscribed to *be* before me this 11th day of July, A. D. 1874.

HENRY R. ELLIOTT,
U. S. Comm'r for the Dist. of Col.

35 *Replication.—Filed July 20, 1874.*

In the supreme court of the District of Columbia.

JOHN VANSANT AND WILLIAM A. DUNCAN, trustee,
vs.
THE ELECTRO-MAGNETIC GAS-LIGHTING COMpany and John W. Thompson and others.
} In equity. No. 3707. Docket 13.

The complainant hereby joins issue with the defendants.

DURANT & HORNOR,
Solicitors of Complainants.

Order of court.—Filed Dec'r 18, 1874.

In the supreme court of the District of Columbia.

VANSANT ET AL.
vs.
ELECTRO-MAGNETIC GAS-LIGHTING CO.
} Equity doc. No. 3707.

36 On motion it is ordered by the court in equity setting, this 18 day of December, 1874, that the above-entitled case be stricken from the calendar, and that the plaintiff & the defendant have thirty days from this date in which to take testimony.

By the court.

A. W.

Testimony.

VANSANT ET AL.
vs.
ELECTRO-MAGNETIC G. L. CO. ET AL.

OCT'R 30, 1874.

GEORGE A. MCILHENNY, being duly sworn, says:

I reside in this city, and am one of the defendants, but not really defending the suit. The letter now shown me is the one I wrote to the doctor. The same letter is herewith filed and marked "Exhibit J. J. J. No. 1." I signed the original articles; that is, I signed the articles that were presented to me, and I expect they were the original. I am one of the trustees. I signed the exhibits marked "J. J. J. No. 2 & J. J. J. No. 3."

I think the reason why the company did not give D'r Vansant his shares of stock was because the experiments were not satisfactory to the company. I was present at the lightening & extinguishing of the
37 street lamps on K street by Vansant's apparatus. They appear to light & extinguish very well. There were some few misses in the lighting and some in the extinguishing. I am not positive about the misses. The lamps appeared to be lighted generally on the street. My opinion from what I saw there that it was quite successful. I don't believe that I can answer the question why the company stopped there. I think, perhaps, the impression was, that it was not quite a success on the part of some of the members. At any rate, they stopped then and

have done nothing since that I know, and don't propose to do anything more that I know of. To my knowledge the company did not pay D'r Vansant for conducting that experiment. I think there was an agreement, but no official action taken on it; but I recollect the fact came up & it was manifest that they were disposed to pay the doctor $1,000; the matter never came to anything, because the doctor refused to receive the money; that is my impression. My impression is, this was to be stated to the doctor, and I understood afterwards the doctor refused to receive it under any conditions except those in the contract, was my impression. I was not present when this statement was made to the doctor.

I think at first it was agreed to light & extinguish the lamps
38 under ground, and afterwards it was changed to above ground, & they did light and extinguish them above ground.

GEO. A. McILHENNY.

Sworn and subscribed to before me this 30th October, 1874.

J. J. JOHNSON, *Exam'r.*

W. W. BENNETT, being sworn, says:

I reside in this city. The battery which lighted the lamps on K street was at my house on New York avenue, No. 921. I think from about the 1st of December to some time after the holidays in January, the lighting & extinguishing took place by D'r Vansant's apparatus on K street. I examined and saw all the lights lighted at once. I went over the lines & saw them lighted & extinguished. I have seen them lighted by D'r Vansant's experiment at once. I went over the lines on one occasion, & all the lights were lighted. I went over the line one night when it was raining, and one-half of the lights failed to light. That was the worst time we had.

I mean to say that they generally lighted all along. I have no pecuniary interest in it. While I had the *the* lighting of them, & when I saw on two or three occasions that they were lighted, I did not
39 go over the line again to see it.

WILLIAM W. BENNET, M. D.

Sworn & subscribed to before me this 30th of October, 1874.

J. J. JOHNSON, *Exam'r.*

Exhibit J. J. J. No. 1.

WASHINGTON, D. C., *Aug.* 26, '74.

Having been informed by D'r John Vansant that an answer has been filed to the suit brought by him against the Electro-Magnetic Gas-Lighting Company and myself along with other members of that company, and that I am made to appear as a party to that answer, I hereby declare that I have not so authorized the use of my name, that I do not wish to defend said suit, and that I think the patents in question should be returned to D'r Vansant.

GEO. A. McILHENNY.

40 *Exhibit J. J. J. No. 2.*

Receipts from subscribers to the Electro-Magnetic Gas-Lighting Co.

J. W. Thompson, $\frac{2}{10}$ths 780
John G. Parke, $\frac{1}{10}$th 390

A. A. Hosmer, $\frac{1}{10}$	390
T. L. Casey, $\frac{1}{10}$	390
Geo. A. McIlhenny, $\frac{1}{10}$	390
W'm Thompson, $\frac{1}{10}$	390
John A. Ruff, $\frac{1}{10}$	390
Madison Davis, $\frac{1}{10}$ on acc't	350
William Myers, $\frac{1}{10}$ " "	200
	3,670

Exhibit J. J. J. No. 3.

Account of disbursements made by the Electro-Magnetic Gas-Lighting Co., from Aug. 31, 1872, to Ap'l, 1874.

1872.			
Aug. 31.	Paid D. Ballauf, for making electral gas-lighter		34 00
" "	To Cha's Williams, j'r, bill of sundries		6 50
Sept. 6.	" D'r John Vansant, salary for Aug		125 00
"	" do do sundry expenses		10 00
" 20.	" R. B. Mohun & Co., stationary & books		7 00
Oct'r 3.	" D. Ballauf, for work done on acc't		100 00
" 5.	" D'r John Vansant, salary for Sept		125 00
" "	" Ch's T. Chester, for sundries per bill		52 70
" "	" D'r Vansant, for incidentals		8 20
" 17.	" bill of exchange on London for covered wire		353 00
" 18.	" D. Ballauf for lamps & work		100 00
41 Oct'r 19.	" D'r Vansant, for bill of C. T. Chester		18 42
" "	" " ditto for bill of Ch's Williams		32 12
" "	" ditto for other small bills		2 15
" 22.	" L. G. Tillotson & Co., for silk cord & wire		29 50
" "	" draft on N. Y. favor Com'r of Patents		50 00
Nov. 2.	" D'r Vansant, for bill of Ja's Moore & Sons		42 92
" "	" D'r Cha's Williams, 3½ t'n rubber plug		9 62
" 9.	" D. Ballauf, on acct' work		100 00
" 18.	" Benj. F. French, seal & press		54 00
" 29.	" D. Ballauf, balance of labor-bill		461 73
Dec'r 2.	" D'r Vansant, bill of sundries		26 03
" 5.	" T. T. Parker, for certain drawings		15 00
" 24.	" G. W. Gregory, travelling expenses in connection with Smith's patent		38 00
" 29.	" C. T. Chester, zinc plates & expenses		52 83
1873.			
Jan'y 3.	" McGill & Witherow, for printing		31 00
" 13.	" steamship co., duties & charges on wire from London		175 14
" "	" D'r Vansant, sundries for battery		16 88
Feb'y 6.	" D'r Vansant's patent fees, &c		24 25
" 27.	" D. Ballauf, for repairs & new battery		112 16
June 3.	" patent-fees for improvement on gas-lighting apparatus		22 00
July 5.	" gas supports purchased in Boston		9 83
" 14.	" D'r Vansant, on acc't induction coil		100 00
Aug. 8.	" D'r Ballauf, for gas-lamps & labor on same		652 20
Sept. 9.	" D'r Vansant, gas-pipe, burners, rubber tube, &c		31 75
Dec. 12.	" L. Whitney, erecting line telegraph		500 00
" "	" rent p'd to D'r Vansant, $10; incidental to same, 4.75		14 75
" 22.	" labor putting up return wire, &c		22 50
" "	" glass insulators for return wire		8 85
1874.			
Jan'y 6.	" D'r Vansant for rent & sundries		15 00
" 26.	" Isaac Curry, for painting poles		2 50
Feb'y 9.	" D'r W. W. Rennet, rent		10
42 Feb'y 11.	" C. T. Bride, plumbing work		4 00
" 23.	" L. H. Schneider, wire, &c		13 63
Ap'l 30.	" R. M. Johnson, for castings		43 75
" "	" labor taking down & putting away wire-poles, &c		51 79
		3,715 70	
	Cr. draft given to Com'r Patents		50 00
			$3,665 70

Testimony for defendants.

In the supreme court of the District of Columbia.

JOHN VANSANT ET AL.
vs.
ELECTRO-MAGNETIC GAS-LIGHTING COMPANY et al. } In equity. No. 3707. Eq. doc. 13.

Be it remembered that an examination of witnesses was held on the 1st & 2nd day of February, A. D. 1875, by the defendant, when the within depositions were taken. I, Henry R. Elliott, an examiner in chancery, did cause to be personally present at the office of Nathaniel Wilson, 635 F street, Washington, D. C., Thomas L. Casey, Addison A. Hosmer, and John W. Thompson, to testify on behalf of defendants in the above-entitled cause.

HENRY R. ELLIOTT,
Examiner in Chancery.

Deposition of Thomas L. Casey, a witness produced and sworn on
43 behalf of defendants in above-entitled case, before me, Henry R. Elliott, an examiner in chancery, on the 1st day of February, A. D. 1875, between the hours of 11 o'cl'k a. m. and 3 o'clock p. m., at the office of Nathaniel Wilson, No. 635 F s't, Washington, D. C., pursuant to notice to be used and read in evidence in support of the above-entitled case.

The same THOMAS L. CASEY, being first carefully cautioned & sworn to tell the truth, the whole truth and nothing but the truth, deposes and says:

I am forty-three years of age, and reside in Washington, D. C.

Being examined by M'r Nathaniel Wilson, of counsel for defendants, the witness further deposes and says:

Q. 1. Are you one of the parties to the agreement made with the plaintiff in this case, on the 24th day of July, 1872, and a copy of which is marked "Exhibit A" to the plaintiff's bill?

A. 1. I am.

Q. 2. State, if you please, what was done in pursuance of that agreement, and in relation to the patents therein referred to, numbered 113370, 120469, 124773, 127000.

A. 2. My impression is that it was in the early summer of 1872. D'r Vansant called upon me at my residence, and informed me that he had a device for turning on, lighting & extinguishing gas in street
44 lamps; subsequent to this interview, within a day or so he called at my office with the apparatus, and exhibited, by practical trial, the lighting of one burner. He then explained to me, either in this or subsequent interviews, about that time, the theory of the apparatus, stating that he had been experimenting with the same apparatus in Boston, & had failed in that city to induce any parties to join with him in the introduction of the apparatus in that city. That the apparatus as used by him in that city was lighted by means of induced electricity, the current of which was to have been induced at a central station by means of a Rumkoof coil; that M'r Farmer, an electrician in Boston, quite celebrated, had written an opinion concerning his apparatus not favorable to its success, by reason of which certain parties that he expected to join him in his enterprise had declined to continue in this en-

terprise. He stated that the difficulty was in the lighting of the lamps, not a sufficient number lighting to make this method a commercial success, but that he had devised a new method different from the one used by him in Boston, by which he would generate at each lamp the induced electricity needed to light that lamp, and he described this method not only to myself, but to the other gentlemen, I think, that finally constituted the Electro-Magnetic Gas-Lighting Company. The method
45 represented by him to me involved the use of two conducting wires which were to be insulated by some insulating material, & were to be buried beneath the ground.

Upon the strength of his representations I joined with John G. Parke in addressing him a letter favorable to his apparatus (method rather), and spoke in favorable terms to other gentlemen concerning it. From my representations and views concerning the proposed method of D'r Vansant, the association of gentlemen forming this company was in a great measure induced.

The proper legal papers were then made out, executed and filed according to the statutes, and the company proceeded to construct the required apparatus, the whole supervision and direction being in the hands of D'r Vansant, and he did construct lamps and apparatus, in accordance with the method represented to the gentlemen before the formation of the company. Previously to the erection of the apparatus in the streets it was considered necessary to set it up and try its workings, which was done in a room belonging to the Washington Gas-Light Company at their works, and where, in connection with the insulated wire, which had been ordered for the trial, the experiment failed; not more than eighteen lamps, if I recollect correctly, could be lighted by this method; I mean to say eighteen lamps out of twenty-five, the latter number being required to light a mile in the streets. The conditions under which this experiment was tried in a room described were
46 much more favorable than the conditions under which the device could be applied in the street, because there was much better insulation for the wires in the room than they would have had in the street.

Strennous efforts were made by D'r Vansant, and long-continued experiment to make this apparatus work, but without avail. These experiments were made to conform as nearly as possible to what the actual trial was to have been in the street, the insulated wire being immersed in tubs of water and subjected to conditions as like as possible as those to which the wires & apparatus would have been subjected had they been placed in the streets with the wires underground.

Professor Henry was asked to come over & look at this apparatus, but he was unable to give any opinion why the apparatus would not work. My recollection is that this trial took place at the gas-works some time in the fall of 1872. The company found itself then in a position either that it must abandon the enterprise or must go on to see if there was any way that lamps could be made to light in the streets. D'r Vansant was largely interested in this thing; the company felt the most friendly way towards him, and he was given time to see whether he could propose some other means: the experiment made proved that the method which he had proposed to the company had failed,
47 and he then suggested, after this time had been given him, in the meetings of the company, that a new lamp devised by him should be tried, the conducting wires erected upon telegraph poles.

This new experiment of the company, which was, I think, undertaken in the spring of 1873, involved the constuction of a number of new lamps, certainly twenty-five—my recollection is fifty—and the conducting wire

was to be the ordinary telegraph wire, two only being used. A line of lamps, in extent of about a mile, on the south side of K street, northwest, was put up late in the fall of 1873, and did not prove a success. I watched these lamps lighting repeatedly, and on no occasion did all the lamps on the line light; usually one, two, or three near the central part of the line would fail to light, and this, too, after a third wire in addition to the two originally intended had been stretched to conduct the induced electricity.

Under the circumstances, I, as a member of this company, was fully convinced that this method of lighting street lamps could not become a commercial success, and that if the lamps upon this line would fail to light with the wires insulated in air, not nearly as good results could be obtained if the wires were insulated under ground. I therefore voted in the company against any further expenditures with this apparatus.

48 The experiments made in the street with the wires in the air, and with new lamps devised after the failure of the first experiment, were no part of the trial agreed to be made by the company in the agreement of July 24th, 1872, and the money expended upon it was over and above the sum agreed to be expended in the agreement of July 24th, 1872. I have paid to the company $390, which should be a tenth part of the sum paid in for the expenses of the company; the dates and payments of the amount are as follows:

Aug. 3rd, 1872	$25
" 21st, 1872	75
Nov. 22nd, 1872	100
June 27th, 1873	150
March 28th, 1874	40
	$390

The lamp used in the experiments at the gas works may be described as follows: It contained a coil of rather coarse wire, which was used when the ordinary voltaic current flowed through it, to render a piece of soft iron magnetic & so open or close the gas-valve. It also contained a coil of very much finer insulated wire, which surrounded the first coil of wire mentioned, which coil of fine wire, in connection with the coarser coil, constituted a small Rumkoof coil, so that an induction current could be obtained in each lamp when the current was broken & closed in the coil of larger wire.

49 The lamps used in K street did not contain the second coil of fine wire; but the induced current was sent to the lamp from a central Rumkoof coil.

There were certain parts of the lamp used on K street for which D'r Vansant informed me he intended to obtain a patent. To the best of my recollection, when the company was forming, D'r Vansant, in explaining to us the methods he intended to use in this trial, informed us that he had filed or intended to file applications for patents for the method that he showed us, and that the matter was pending in the Patent Office.

Cross-examined by Ch's W. Hornor, att'y for pl'ffs:

X. I have read the answer filed by me and others to the bill, and to the best of my belief & knowledge all the facts set forth are true. I think the company still possess all the apparatus & tools that have been made for the trial of the several experiments. The understanding with D'r Vansant was that while he was engaged in getting this apparatus

ready and putting it into the street, that he was to be paid a certain sum per month, I think $125, sufficient to pay his board bills & keep him, and this money was given by the company, under the understanding that D'r Vansant was in rather straightened circumstances. This D'r Vansant continued to draw from the company for a period
50 covering, as near as I can recollect, for the time he said it would take him to put it in the street, and then he ceased to ask any further sum from the company, and I think that was during a period of two or three months from the organization of the company, the months of August & September & October, 1872. My recollection is that he never received any compensation for any further services. I don't think he received any compensation for his services on K street; if he did, it was without my knowledge.

X Q. 2. Have these patents ever been tried by wires passing under ground?

A. 2. They never have, to my knowledge. The principles that are involved or made use of in these patents do not require for their elucidation the construction of the entire system in all its details, and I was told by D'r Vansant that he had actually buried a certain length of wire, as near as I can recollect 350 yards, and that the results obtained were not satisfactory to him. Vast quantities of wire have been buried, but not in connection with this apparatus, as for instance the Atlantic cable and the telegraph wires used in England & Europe, and various places, and the effect of such burying is well known to electrical science.

X Q. 3. Did you see & examine the patents before May 9th, 1872?

51 X A. 3. I don't think I ever saw or examined the patents at all; that is, before the organization of the company; and I know I have never read any of them through.

X Q. 4. Was it in contemplation before the company was formed that the wires should go exclusively underground?

X A. 4. It was so entirely; and there was no suggestion that the wires should go overhead, or any offer on the part of D'r Vansant in describing his method to us to put the wires overhead, and that the trial which the company was to make was to be with wires underground is substantiated by the fact that the wire ordered by D'r Vansant for the trial was insulated gutta-percha wire.

X Q. 5. How many of Vansant's patents represent the wires above ground?

X A. 5. I don't think there is but one. I am not certain. I think that was one taken out after the company was formed.

X Q. 6. You are familiar with electrical principles, are you not?

X A. 6. Only to a limited extent.

X Q. 7. In the experiment tried at the gas works, what kind of electricity was used?

X A. 7. Ordinary voltaic electricity.

X Q. 8. What on K street?

X A. 8. Ordinary voltaic electricity for opening and closing the valves, and induced current of electricity for lighting the lamps,
52 the induced electricity being generated at a Rumkoof coil at a central station, and sent out over the line.

X Q. 9. What, then, was the objection of the induction coil around the lamps on K street?

X A. 9. There was no induction coil around the lamps used on K street.

X-Q. 10. What kind of electricity was used overhead? What kind of electricity was used in the third wire you have spoken about?

X-An. 10. The third wire was used on account of the insufficiency of the one wire to convey the induced electricity to light the lamps. I present a rough sketch showing how the three wires are relatively situated, and marked T. L. C., No. 1.

X-Q. 11. How many different nights, during the experiment on K street, did you see the operation?

X-A. 11. My house is on the north side of K street, between 14th street & Vermont Avenue, right opposite to S't Matthew's school, and almost every night I used to go out on my steps & see the lamps lighted.

X-Q. 12. Are you able to state distinctly that on no occasion, during the experiments, all the lamps lighted?

X-A. 12. I am not able to state, for you cannot see all the lamps from my house.

X-Q. 13. Can you swear definitely that on no occasion, during the experiments, all the lamps lighted?

53 X-A. 13. No, I cannot swear to anything of the kind; it is possible there may have been an occasion when they all lighted—on more than one occasion.

X-Q. 14. Where was Thompson when these experiments were going on?

X-A. 14. He was a resident in the city & had his general residence here. I identify the letter now shown to me of May 9th, 1872, directed to D'r Vansant, and the endorsements thereon by Professor Henry & General John G. Parke, and marked T. L. C., Exhibit No. 2. I have no doubt that this letter had its influence in inducing the gentlemen of the company to undertake the method of D'r Vansant.

X-Q. 15. Was the experiment on K street, so far as letting on and shutting off the gas, a success?

X-A. 15. I think it was a success, so far as the turning on & shutting of the gas, and I do not know of its ever having failed to extinguish the lamps.

X-Q. 16. Had any of the experiments whatever been tried by Vansant before the transfer of the patents to the company?

X-A. 16. My impression is that neither of them took place before the transfer of the patents to the company.

X-Q. 17. Does the company intend to do anything further with these patents, in the development of them?

54 A. 17. I do not think the company intends to spend any further sum on these patents.

Redirect:

Q. While these experiments were going on, what attention was given to them by various members of the company, and were suggestions made from time to time of devices for overcoming the difficulties that were encountered?

A. I can say that M'r Thompson, the president of the company, paid great attention to the experiments, and was posted quite frequently from day to day by D'r Vansant; then at every meeting of the directors D'r Vansant used to make a report which can be seen on the minutes of the company; then he used to hold almost daily conferances with myself on these subjects, and received suggestions and advice. I suggested to him things, & talked them over from time to time, which were subsequently the subjects of patent.

Recross:

Q. Does electricity pass just as easily through wires in the earth as through wires in the air?

A. No, it does not. When a wire is insulated by means of
55 gutta-percha covering, the wire has first to be charged with its load of electricity, which induces upon the exterior coating of the insulating material a charge of opposite electricity, and this condition of affairs retards the flow of electricity through the wire.

Q. Is it not a mere question of expense whether the wires conveying the electricity be placed in the earth or the air?

A. I do not think it is a mere question of expenses, for a device which would work when the wires are in the air would not, owing to the retardation I have spoken of, work when the wires are under ground.

Q. Had the experiment on K street been successful, would it not be a mere question of expense to convey the electricity by means of wires under ground?

A. I do not think it would.

THOMAS L. CASEY.

Sworn & subscribed to before me this 1st day of February, A. D. 1875.

HENRY R. ELLIOTT,
Examiner in Chancery.

Adjourned until Tuesday, February 2nd, 1875, at 2 o'clock, to meet at the same place.

HENRY R. ELLIOTT,
Examiner.

Met pursuant to adjournment.

Present: Mr. Nathaniel Wilson, solicitor for defendants, and
56 Mr. Charles W. Hornor, solicitor for complainants, and ADDISON A. HOSMER, who, being first duly sworn for defendants, in answer to interrogatories propounded by M'r Wilson, deposes & says:

I am one of the parties to this suit & to the agreement, a copy of which is attached to the bill of complaint as an exhibit.

The agreement was made after several meetings at Metzerott Hall, where D'r Vansant had exhibited an apparatus for lighting gas by electricity, and which he proposed to apply practically to the lighting of the street gas in this city & elsewhere. The process of lighting at Metzerot Hall was through coils of wire attached to half a dozen or more gas-burners, and it was proposed to expend the money provided for in the agreement to test practicability of lighting with the wire laid under ground; that was a question which it was thought could not be determined by lighting gas through the wires above ground, and the practical value of the device was deemed to hinge entirely upon the fact whether or not the wires could be laid under ground so as to light the lamps. This was distinctly made; I think I was the one to propose it, as the condition of successful and satisfactory experiment. I am not aware of the details of the work or the preparations made by D'r Vansant to make this experiment under ground; my personal knowl-
57 edge was derived only from conversations with D'r Vansant and other parties to the agreement as to what was being done. I have no personal knowledge of the experiments tried at the gas works. At a meeting of the parties to the agreement the experiment there was dis-

cussed & admitted by all parties, as I recollect it, as a failure. Subsequent to that some arrangement was made, what it was and by whom it was made I have no personal knowledge, but the wires were put up on poles on K street above ground, and series of experiments made. I was present, at least I witnessed the attempt made to light the streets by such means. I never saw the lamps all lighted at any one time. I do not mean to say that they all never lighted, but I mean to say that they all did not light when I was present & witnessed the attempt. I saw them from the summit of K street or near there; that is, 13th & K, on three or four different evenings, that I recollect. It might have been more. Several times on my way home from my office I would drive up K street in order to see the lighting. On some occasions, perhaps one or two, all the lamps lighted from 9th to 13th. I could not see beyond 13th.

I never understood his trial on K street to be the trial provided
58 for in the agreement made, to which I have heretofore referred in my answer.

Cross-examined by Gen. Ch's W. Hornor:

The contracts, A & B, were drawn up in my office by M'r A. G. Heylburn under the direction of D'r Vansant, or, as I suppose, in pursuance of consultations with him. Vansant never objected to these documents to my knowledge. He complained at the last meeting but one, after the experiment on K street, that if he had anticipated any difficulty he would have had some further provision as to what should be or who should decide what was satisfactory.

I don't know how the company came to try this experiment on K street; it was without my knowledge, and without any consultation with me.

Q. Had that experiment proved a success and yet failed when tried with the wires running under ground, would in your understanding of the contract, would the experiment have been satisfactory?

A. It would not have been satisfactory to me, and I so stated to other members of the company. I distinctly said that after this apparatus on K street was put up that I wanted the test made with the wires
59 underground, and proposed that a square of vacant ground could be used by putting up temporary lamp-posts, and having wires run round the square under ground. No action, however, was ever taken in that direction. That was after more than the money agreed upon had been expended.

Q. Did Vansant know at the time he made the agreements with the nine men and the company that the experiment to be declared satisfactory should succeed by wires laying under the ground?

A. I supposed at the time he did so know, and I have never heard anything from D'r Vansant or other members of the company to suggest the idea that he did not. I have no idea why that condition was not put in the contract.

I think that the vote of the parties to that agreement is on the books. I know that the company has stopped—that is to say, so far as I am concerned, until D'r Vansant demonstrates to my satisfaction that he can light gas-lamps by running his wires under ground, substantially as the original agreement calls for; then I am ready to go ahead.

60 Q. Was there ever any contract between you and Vansant, that until he demonstrated the success of the patents your responsibility as a stockholder should not exist beyond the $2,500 expressed in the agreement?

A. I never had any contract with D'r Vansant except the one to which the other gentlemen were parties, of July 24th, 1872.

Q. Was there any guarantee of any kind made by D'r Vansant to you that these patents would be a success?

A. None save what are embraced in the conditions of the agreement. I think D'r Vansant owes the company money. I think the books will show for the amount of money used by him, and the materials furnished, in excess of the $2,500 agreed upon.

ADDISON A. HOSMER.

Sworn and subscribed to before me this 2nd day of February, A. D. 1875.

HENRY R. ELLIOTT,
Examiner.

M'r JOHN W. THOMPSON, being first duly sworn on behalf of the defendants, deposes & says:

I am 52 years of age; my occupation is president of the Metropolitan Bank.

61 I am one of the defendants in this case, and a party to the agreement which is attached to the bill of complaint as an exhibit.

After the agreement was made, D'r Vansant was ordered to proceed with the work. Before he could fully go on it was necessary that several miles of covered wire should be purchased in England, suitable to be laid underground. Before procuring the wire, however, he went on to prepare the minor details of the work. On receipt of the wire the experiments were made at the gas house, which continued for several months, commencing about August, 1872, and continuing through the months of August, September, October, November, and December of that year. I was present at several of the experiments made by D'r Vansant at the gas works, and found the greatest number of lights that lighted at any time was eighteen out of twenty-five, that being the estimated number required to light a mile. The wire was thoroughly immersed in water, so that the conditions would be nearly as equal as possible as if the wires were underground. The experiment was a failure & admitted to be so by D'r Vansant. At the interview which I had with him he

62 was depressed; seemed to feel as if he would give up the whole scheme. After the failure of the trial and experiment which was made under an agreement referred to, I said to D'r Vansant, I don't desire to see you give the scheme up in this way, and am willing to assist you if I can; why not try the experiment with the wires overhead? We immediately procured to arrange matters to try further experiment with the wires over-head, which resulted in the K street test, which was made in January, 1874.

Q. How much money had been expended up to the time that the scheme for lighting lamps by wires running underground was abandoned, and what was the total of the moneys expended in testing that scheme?

A. The amount spent for testing the underground plan at the gas works exceeded $2,500. The total amount expended up to the time of the withdrawal of D'r Vansant was about $3,600. I will present an account from the books showing distinctly every expenditure, and what it was for, and the date, and showing as nearly as possible the amount of the expenses for the two series of experiments.

63 After the experiment at the gas works failed, D'r Vansant relinquished his claim for any further personal compensation, because, as he stated to me, he felt that he could not justly make a charge of it because the experiment failed.

Q. State whether or not another patent was issued to D'r Vansant in June, 1873, the costs of which were paid by the company?

A. The company paid $22 for the issuing of a patent No. 139692. This patent and those which were assigned by D'r Vansant are offered in evidence, and marked Exibits 1, 2, 3, 4, 5.

Cross-examined by M'r Hornor:

There were nine persons; all held one-tenth except myself, who held two-tenths. I am not certain how much money has been paid by each member of the company, but will furnish a list showing the amounts paid by each member.

I was on K street frequently during the time when the experiments were made of the lamps from 9th street to near the western market. On the evening of the public exhibition, for which invitations had been issued, it was not a complete success. The lamps at the corner
64 of 13th and K streets not lighting on several occasions of that evening's test. I saw them extingtished, and they generally went out pretty well. I heard from either M'r Vansant or M'r Bennett that they had to put some of the lights out. The experiment on the night of which I have spoken was more successful than on any evening subsequent. On the last evening that they were lighted I walked along the line and found but one lamp lighted in three squares, between 15th & 18th streets. On no occasion, when I was present, to light all the lamps completely successful.

Q. How many days did you see the experiment tried?

A. I could not say the number of nights I was on the street. I should say from ten to a dozen times.

Q. How often did you see the lamp at the corner of 13th & K streets fail to light?

A. I speak generally of the lamps refusing to light except the night of the exhibition, when the light on 13th & 12th streets refused to light. I was not displeased with the experiment after the test was over. I had no occasion to be displeased at it as the doctor felt satisfied that he could make perfect any defect in the lighting.

65 Q. Was anything said after the experiment about paying D'r Vansant anything?

A. No; there was no talk about pay. There was an offer to loan him a $1,000 to enable him to make effort to introduce his devices and apparatus in the other cities, which the doctor refused to receive, and said he would receive nothing unless we would pay him as due under his contract.

I doubt very much whether anything has ever been paid for the preparation of the contracts. At least no bills have ever been presented for them.

J. W. THOMPSON.

DISTRICT OF COLUMBIA:

I, Henry R. Elliott, an examiner in chancery, do hereby certify that the foregoing depositions were taken down & reduced to writing by me in the presence & from the statements of the witnesses at the time & place designated in the caption thereof, and were then & there read over by me to the witnesses, & by them subscribed in my presence, and that I was attended by the counsel of both parties, respectively, and the witnesses were first duly sworn to testify the truth, the whole truth, and nothing but the truth, touching the matters at issue in said cause.

66 I further certify that I am not of counsel for any of the parties to said cause, or in any manner interested therein.

HENRY R. ELLIOTT,
Examiner in Chancer.

Exhibit T. L. C., No. 1.

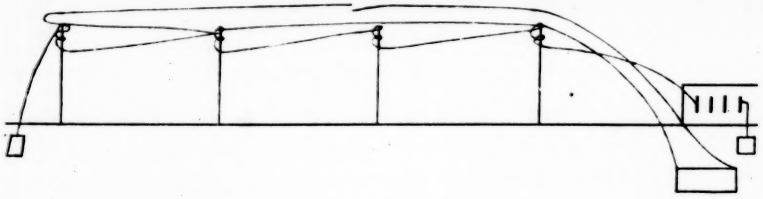

Exhibit T. L. C., No. 2.

WASHINGTON, D. C., *May* 9, 1872.

D'r JOHN VANSANT.
Washington, D. C.:

D'R SIR: I have examined with pleasure your ingenious method for "turning on, lighting, and extinguishing" gas in street lamps, accomplished by the use of electric currents.

The apparatus is simple and with proper insulated conductors, free from parts liable to be easily deranged.

There is every reason to believe that its application to the
67 street lamps of this city would be feasible, and result in a saving of expense to the community.

Very respectfully, your ob'd't serv't,

THOS. LINCOLN CASEY,
Major, Corps of Engineers, U. S. A.

I heartily concur.

JNO. G. PARKE,
Maj. in Corps of Eng'rs, B'v't Maj. Gen'l.

I have examined the apparatus of M'r Vansant for kindling street lamps by means of electricity. I think it very ingenious & believe it will answer the purpose intended.

JOSEPH HENRY.

SMITHSONIAN INST'N, *May 9th*, 1872.

Decree.—Filed May 25, 1875.

In the supreme court of the District of Columbia.

JOHN VANSANT, ET AL., PLAINTIFFS,
vs.
THE ELECTRO-MAGNETIC GAS-LIGHTING COMPANY et al., defendants. } In equity. No. 3707.

This cause coming on to be heard on bill, answer, and exhibits, & on proofs taken & arguments of counsel, it appearing to the court by an assignment dated the 24th day of July, 1872, the said plaintiff, John Vansant, in his own right & as attorney in fact for William A. Duncan, trustee for Susan A. Duncan, sold, conveyed, and transferred to the
68 defendants, John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, and singular the right, title, and interest which he, the said John Vansant, possessed in his own right and as

attorney in fact as aforesaid, in and to certain letters patent of the United States bearing date respectively April 4th, 1871, October 31st, 1871, March 19th, 1872, and May 21st, 1872, and numbered respectively 113,370, 120,469, 124,773, and 127,000, and all right of invention to any & all improvements which he, the said John Vansant, should thereafter invent or make to the devices mentioned in said letters patent respectively, whether the same should be patented or otherwise, and also all & singular the rights & privileges which might thereafter be granted to the said John Vansant upon and by any extension of said letters patent or any one or more of them; and also that the said defendants, John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, by an assignment dated the 24th day of February, 1873, sold, conveyed, and transferred to the Electro-Magnetic Gas-Lighting Company all the rights, title, and
69 interests conveyed to said John W. Thompson & others by said assignment dated the 24th day of July, 1872, as is shown by said assignments, copies of which are attached to the bill of complaint and marked Exhibits B & D.

And it further appearing to the court that it was the intention plaintiff & defendant to provide for a reconveyance to the said plaintiffs of one undivided half interest in and to said letters patent, and in and to the rights & interests so conveyed by said assignments as aforesaid, and that the Electro-Magnetic Gas-Lighting Company should become the absolute owner of, and hold & possess absolutely an undivided half interest in and to said letters patent, rights, and interests: it is therefore ordered, adjudged, & decreed by the court in equity sitting, this 25th day of May, 1875, that the said defendant, The Electro-Magnetic Gas-Lighting Company, assign and reconvey, by an instrument in writing to be approved by the court, to the said plaintiffs one undivided half interest in and to said letters patent of the United States, dated respectively April 4th, 1871, October 31st, 1871, March 19th, 1872, and May 21st, 1872, and numbered respectively 113,370, 120,469, 124,773, and 127,000; and also one undivided half of all the rights, title, and
70 interests so conveyed as aforesaid by said assignments, dated respectively July 24th, 1872, and February 24th, 1873.

It is further ordered, adjudged, and decreed that the parties, plaintiff & defendant, each pay their own costs incurred in this suit, and that neither party be entitled to recover costs as against the other.

By the court.

A. W.

Deed.—Filed May 25, 1875.

Whereas in a cause pending in the supreme court of the District of Columbia, wherein John Vansant & others are plaintiffs, and the Electro-Magnetic Gas-Lighting Company & others are defendants, said cause being No. 3707 on the equity docket of said court, a decree was entered on the 25th day of May, 1875, in the words & figures following, that is to say:

In the supreme court of the District of Columbia.

JOHN VANSANT ET AL., PLAINTIFFS,
vs.
THE ELECTRO-MAGNETIC GAS LIGHTING COMPANY ET AL., DEFENDANTS. } In equity. No. 3707.

71 This cause coming on to be heard on bill, answer, & exhibits

and on proofs taken and arguments of counsel, it appearing to the court that by an assignment, dated the 24th day of July, 1872, the said plaintiff, John Vansant, in his own right and as attorney in fact for William A. Duncan, trustee for Susan A. Duncan, sold, conveyed, and transferred to the defendants, John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny all & singular the right, title, & interest which he, the said John Vansant, possessed in his own right and as attorney in fact as aforesaid, in and to certain letters patent of the United States, bearing date respectively April 4th, 1871, October 31st, 1871, March 19th, 1872, and May 21st, 1872, and numbered respectively 113,370, 120,469, 124,773, and 127,000; and all right of invention to any & all improvements which he, the said John Vansant, should thereafter invent or make to the devices mentioned in said letters patented or otherwise, and also all & singular the rights & privileges which might hereafter be granted to the said John Vansant upon and by any extension of said letters-patent, or any one or more
72 of them, and also that the said defendants John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny, by an assignment dated the 24th day of February, 1873, sold, conveyed, and transferred to the Electro-Magnetic Gas-Lighting Company all the rights, title, and interests conveyed to said John W. Thompson and others, by said assignment, dated the 24th day of July, 1872, as is shown by said assignments, copies of which are attached to the bill of complaint and marked "Exhibits B and D."

And it further appearing to the court that it was the intention of the parties, plaintiff and defendant, to provide for a reconveyance to the said plaintiffs of one undivided half-interest in and to said letters-patent, and in and to the rights & interests so conveyed by said assignments as aforesaid, and that said Electro-Magnetic Gas-Lighting Company should become the absolute owner of & hold & possess absolutely an undivided half interest in and to said letters-patent, rights, & interests.

It is therefore ordered, adjudged, & decreed by the court in equity sitting, this 25th day of May, 1875, that the said defendant, the
73 Electro-Magnetic Gas-Lighting Company, assign & reconvey by an instrument of writing, to be approved by the court, to the said plaintiffs, one undivided half interest in and to said letters-patent of the United States, dated respectively April 4th, 1871, October 31st, 1871, March 19th, 1872, and May 21st, 1872, and numbered respectively 113,370, 120,469, 124,773, and 127,000; and also one undivided half of all the rights, title, & interest so conveyed as aforesaid, by said assignments, dated respectively July 24th, 1872, and February 24th, 1873.

It is further ordered, adjudged, and decreed that the parties, plaintiff and defendant, each pay their own costs incurred in this suit, and that neither party be entitled to recover costs as against the other.

Now, this indenture witnesseth, for and in consideration of the premises, the said Electro-Magnetic Gas-Lighting Company has assigned, conveyed, and set over, and doth hereby assign, convey, and set over unto the said John Vansant and unto the said William A. Duncan, trustee for the said Susan A. Duncan, one undivided half of all the right, title, or interest which the said company has or has had in said
74 inventions, as secured by said letters-patent, and one undivided half of all the title, rights, and interests of whatever kind, conveyed by said assignments, bearing date respectively the 24th day of

July, 1872, and the 24th day of February, 1873, for their own use and behoof, and for the use & behoof of their legal representatives, to the full end of the term for which said letters-patent are granted.

In testimony whereof.

75 EXHIBIT NO. ONE.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Letters patent No. 113,370, dated April 4, 1871. Improvement in electric gas-lighting and extinguishing apparatus.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, John Vansant, of San Francisco, in the county of San Francisco and State of California, have invented a new and improved electrical gas-lighting and extinguishing apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a vertical longitudinal section of my improved electrical gas-lighting and extinguishing apparatus, *x x*, fig. 2, being the section line.

Figure 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention has for its object to produce an apparatus by means of which gas can be lighted and extinguished on a suitable number of burners in rapid succession, and without requiring the handling of or personal contact with each burner or its gas-pipe.

The invention consists in the application to each gas-pipe or burner of an electric apparatus, by means of which the valve for admitting the gas to the burner or withholding it from the same will be opened or closed whenever the currents are directed in the appropriate manner.

When a number of instruments are thus applied to as many street-lanterns or other gas-lamps, and duly connected with each other and with the battery, the several burners can be lighted or extinguished in rapid succession, as the electric action will be continued from one another.

The invention consists, also, in several separate improvements regarding the construction and arrangement of parts in my apparatus hereinafter more fully set forth.

A in the drawing represents the gas-pipe, which leads to the burner B of a street-lamp or other suitable illuminating apparatus.

The lower end of the pipe A is in connection with a constant supply of gas in the ordinary manner.

A cock, *a*, is arranged within the pipe to prevent the gas from passing directly to the burner.

Below said cock projects from the pipe A a horizontal branch, *b*, which enters a vertical cylinder or vessel, C, and is, within the same, turned up to form a vertical arm, *c*.

The upper end of the branch pipe *b c* is open, and is situated in about the middle of said cylinder.

From the top of the cylinder C extends another branch pipe, *d*, into the main pipe A, above the cock of the same. The cylinder C is closed on all sides.

The gas can thus, when the cock *a* is closed, reach the burner by means of the pipe *b*, cylinder C, and branch *d*. To prevent this a weighted valve, *e*, rests upon the open end of *c* and closes the same.

The valve *e* is made in form of an inverted cup, and fits entirely over the upper part of the pipe *c*, its lower end resting on a shoulder, *f*, which projects from said pipe.

The vessel C contains mercury, into which the lower part of the cup *e* is dipped to produce an absolutely tight lock to the pipe *c*, and prevent all escape of gas therefrom into the vessel C.

The shoulder *f* aids also in confining the gas within the pipe *c*, as it makes the displacement of the mercury by pressure more difficult.

The valve *e* is secured to a rod, *g*, which projects upwardly through the top of the cylinder, fitting its aperture so nicely, or being packed so close, preferably by means of a tube, *p*, which reaches from the top of C into the mercury, that gas cannot escape around it.

An arm, *h*, which projects from the rod *g* enters the circle, within which a series of pins, *i i*, projects from a disk, D.

This disk is mounted upon a horizontal arbor, *j*, which is hung in posts *k k* that project from the same bed or plate E upon which the cylinder C is also secured.

When the disk D is turned in the direction of the arrow, shown in fig. 1, its pins *i* will strike the arm *h* and elevate the same, and with it the valve *e*, holding it elevated until they pass from under said arm *h* and drop it again to reclose the valve.

One true object of the electric apparatus is, therefore, to impart intermittent rotary motion to the disk D in such manner and with such a degree of precision that thereby the arm *h* can be elevated and held up when desired, or dropped and held closed at pleasure.

When the pin *h* is thus elevated the valve *e* is raised out of the mercury and clear of the pipe *c*, to no longer constitute a hindrance to the gas which passes to the burner, and a free supply to the latter is thus provided.

Whenever the pin *h* is not raised or held elevated by a pin, *i*, the valve *e* will be closed, as aforesaid, to prevent gas from reaching the burner.

To one face of the disk D is affixed a ratchet-wheel, *l*, into the teeth of which engages a claw, *m*, and a pawl, *n*.

The claw is pivoted to a reciprocating frame, F, which, when it is moved down, will cause the claw to move the tooth with which it engages down with it, thereby turning the ratchet-wheel and disk.

The pawl *n* is pivoted to a post, K, and held by a spring against the edge of the ratchet-wheel to prevent the same from turning back.

76 The teeth of the ratchet-wheel and the strokes of the frame F can be so graduated or adjusted that a certain number of such strokes will be required to raise, another number to drop, the valve.

Thus, two or three downward movements of the frame F may suffice to open, one or two further movements of the same to close, the valve *e*.

The frame F operates in conjunction with the electro-magnet G that is securely affixed to the base or bed E.

The frame F and magnet G are each U-shaped, and their ends are placed opposite each other and surrounded by coils H of insulated wire, as indicated in the drawing.

The frame F, which thus forms a magnet, is held elevated by a weak

spring, *o*, or other device. When, however, by means of an electric current, the irons F G become magnetic, the former will be drawn down toward G. One stroke of the claw is thus made. The current is next broken, and the frame F will be sent up by the spring, when another downward stroke can be reproduced by the re-establishment of the circuit. In this manner the exact number of strokes can be produced by a suitable switch on the wires which connect the coils H with a suitable battery.

The exact number of strokes for closing or opening the valve *e* can thus be produced.

The gas is lighted by an electric spark which passes from one platina-tipped wire I to another, J, right above the opening of the burner. The said wires I J are connected with a suitable induction-coil, to become charged at the proper time with an intense current.

The induction-main may be connected with the apparatus which regulates the currents from the battery, so that the current through I J will be most intense when the current through the coil H is interrupted after the valve *e* has been opened.

The cock *a* is provided to permit the use of the burner in case the above-described apparatus should get out of order.

The burner I prefer to make of lava or other non-conducting material, so that it will not interfere with the passage of the igniting current.

Having thus described my invention,

I claim as new and desire to secure by letters patent—

1. The pipes *b d* extending from the gas-pipe A below and above a partition or stop within the same into a cylinder or vessel, C, within which an adjustable valve, *e*, is arranged for regulating the passage of the gas, as specified.

2. The cylinder C containing the pipe *b c*, and the adjustable valve *e* for opening or closing the same, and the mercury or liquid for receiving the lower end of the closed valve, as set forth.

3. The valve *e*, connected with the arm *h*, and combined with the disk D and pins *i*, so that rotary motion of said disk in the same direction will serve to alternately open and close the said valve, as specified.

4. The reciprocating electro-magnet F, connected with the claw *m*, and combined with the fixed magnet G and rotary disk D, to operate substantially as herein shown and described.

5. The coils H H, combined with the magnets F G to operate in conjunction with the same, substantially as herein shown and described.

JOHN VANSANT.

Witnesses:

EDW'D CHATTIN,
F. I. THIBAULT.

(Here follows drawing, folio 77.)

78 120,469.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in apparatus for lighting gas by electricity. Specification forming part of letters patent No. 120,469, dated October 31, 1871.

To all whom it may concern:

Be it known that I, JOHN VANSANT, of San Francisco, in the county of San Francisco and State of California, have invented a new and use.

From the top of the cylinder C extends another branch pipe, *d*, into the main pipe A, above the cock of the same. The cylinder C is closed on all sides.

The gas can thus, when the cock *a* is closed, reach the burner by means of the pipe *b*, cylinder C, and branch *d*. To prevent this a weighted valve, *e*, rests upon the open end of *c* and closes the same.

The valve *e* is made in form of an inverted cup, and fits entirely over the upper part of the pipe *c*, its lower end resting on a shoulder, *f*, which projects from said pipe.

The vessel C contains mercury, into which the lower part of the cup *e* is dipped to produce an absolutely tight lock to the pipe *c*, and prevent all escape of gas therefrom into the vessel C.

The shoulder *f* aids also in confining the gas within the pipe *c*, as it makes the displacement of the mercury by pressure more difficult.

The valve *e* is secured to a rod, *g*, which projects upwardly through the top of the cylinder, fitting its aperture so nicely, or being packed so close, preferably by means of a tube, *p*, which reaches from the top of C into the mercury, that gas cannot escape around it.

An arm, *h*, which projects from the rod *g* enters the circle, within which a series of pins, *i i*, projects from a disk, D.

This disk is mounted upon a horizontal arbor, *j*, which is hung in posts *k k* that project from the same bed or plate E upon which the cylinder C is also secured.

When the disk D is turned in the direction of the arrow, shown in fig. 1, its pins *i* will strike the arm *h* and elevate the same, and with it the valve *e*, holding it elevated until they pass from under said arm *h* and drop it again to reclose the valve.

One true object of the electric apparatus is, therefore, to impart intermittent rotary motion to the disk D in such manner and with such a degree of precision that thereby the arm *h* can be elevated and held up when desired, or dropped and held closed at pleasure.

When the pin *h* is thus elevated the valve *e* is raised out of the mercury and clear of the pipe *c*, to no longer constitute a hindrance to the gas which passes to the burner, and a free supply to the latter is thus provided.

Whenever the pin *h* is not raised or held elevated by a pin, *i*, the valve *e* will be closed, as aforesaid, to prevent gas from reaching the burner.

To one face of the disk D is affixed a ratchet-wheel, *l*, into the teeth of which engages a claw, *m*, and a pawl, *n*.

The claw is pivoted to a reciprocating frame, F, which, when it is moved down, will cause the claw to move the tooth with which it engages down with it, thereby turning the ratchet-wheel and disk.

The pawl *n* is pivoted to a post, K, and held by a spring against the edge of the ratchet-wheel to prevent the same from turning back.

76 The teeth of the ratchet-wheel and the strokes of the frame F can be so graduated or adjusted that a certain number of such strokes will be required to raise, another number to drop, the valve.

Thus, two or three downward movements of the frame F may suffice to open, one or two further movements of the same to close, the valve *e*.

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The frame F and magnet G are each U-shaped, and their ends are placed opposite each other and surrounded by coils H of insulated wire, as indicated in the drawing.

The frame F, which thus forms a magnet, is held elevated by a weak

spring, *o*, or other device. When, however, by means of an electric current, the irons F G become magnetic, the former will be drawn down toward G. One stroke of the claw is thus made. The current is next broken, and the frame F will be sent up by the spring, when another downward stroke can be reproduced by the re-establishment of the circuit. In this manner the exact number of strokes can be produced by a suitable switch on the wires which connect the coils H with a suitable battery.

The exact number of strokes for closing or opening the valve *e* can thus be produced.

The gas is lighted by an electric spark which passes from one platina-tipped wire I to another, J, right above the opening of the burner. The said wires I J are connected with a suitable induction-coil, to become charged at the proper time with an intense current.

The induction-main may be connected with the apparatus which regulates the currents from the battery, so that the current through I J will be most intense when the current through the coil H is interrupted after the valve *e* has been opened.

The cock *a* is provided to permit the use of the burner in case the above-described apparatus should get out of order.

The burner I prefer to make of lava or other non-conducting material, so that it will not interfere with the passage of the igniting current.

Having thus described my invention,

I claim as new and desire to secure by letters patent—

1. The pipes *b d* extending from the gas-pipe A below and above a partition or stop within the same into a cylinder or vessel, C, within which an adjustable valve, *e*, is arranged for regulating the passage of the gas, as specified.

2. The cylinder C containing the pipe *b c*, and the adjustable valve *e* for opening or closing the same, and the mercury or liquid for receiving the lower end of the closed valve, as set forth.

3. The valve *e*, connected with the arm *h*, and combined with the disk D and pins *i*, so that rotary motion of said disk in the same direction will serve to alternately open and close the said valve, as specified.

4. The reciprocating electro-magnet F, connected with the claw *m*, and combined with the fixed magnet G and rotary disk D, to operate substantially as herein shown and described.

5. The coils H H, combined with the magnets F G to operate in conjunction with the same, substantially as herein shown and described.

JOHN VANSANT.

Witnesses:

EDW'D CHATTIN,
F. I. THIBAULT.

(Here follows drawing, folio 77.)

78 120,469.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in apparatus for lighting gas by electricity. Specification forming part of letters patent No. 120,469, dated October 31, 1871.

To all whom it may concern:

Be it known that I, JOHN VANSANT, of San Francisco, in the county of San Francisco and State of California, have invented a new and use.

ful improvement in electric gas-lighting-and-extinguishing apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a vertical central section of my improved gas-lighting-and-extinguishing apparatus, the line *c c*, Fig. 2, indicating the plane of section. Fig. 2 is a transverse section of the same on the line *k k*, Fig. 1. Fig. 3 is a side view of the same. Fig. 4 is a bottom view of the same.

Similar letters of reference indicate corresponding parts.

My invention consists in the means for lighting and extinguishing gas by electricity, as hereinafter fully described and subsequently pointed out in the claims.

A in the drawing represents the lower part of a gas-pipe, of which B is the upper portion, supporting the burner. Between the parts A B of the gas-pipe is interposed a cylindrical chamber, C. This chamber has a bottom, *a*, with an aperture in it for admitting the gas from below. A small tube, *b*, projects from the bottom *a* around the said aperture. It serves as a valve-seat and prevents the mercury or other liquid contained within the chamber C from running out. D is a cap or valve suspended over the open end of the tube *b* from a rod, E, which extends first downward into a well, *d*, and thence upward through the cover *e* of the chamber C. The well *d* is suspended below the bottom *a* of the chamber, and therefore filled with mercury. A pipe, *f*, suspended from the cover *e*, surrounds the rod E and dips into the mercury so as to prevent the escape of gas from the chamber around the rod. A pin, *g*, projecting from the upper part of the rod E above the cover F, is supported by pins *h h* that project from a face of the ratchet or toothed wheel, F. This wheel receives intermittent rotary motion by means of a pawl, *i*, which is connected more or less directly with the movable magnet so as to operate the wheel F and thereby control the positions of the rod E and cap D substantially on the principle described in my aforesaid letters patent. The cap D is so made that its cross-section is larger than that of the vacant space around and within it, so that the motion of the mercury will exceed that of the cap when the latter is dipped to shut off the gas. Thereby the pressure of the mercury and its efficiency for preventing the passage of gas from A to B is materially increased, and thereby the object of the mercury attained with a shorter movement of the cap. The pawl *i* is represented as being pivoted to a lever, *j*, which is, by a rod, L, connected with the movable magnet G. But the lever may, if desired, be dispensed with, and other suitable connection between *i* and G substituted. To the lever or its equivalent is also secured an arm, *m*, which acts as a check on the wheel F, preventing the impetus given by the pawl from impelling it further than just one tooth at each motion. *n* is a detent against the wheel F, preventing it from turning in the wrong direction. The movable magnet G is arranged around the gas-pipe, and consists of an iron bottom, X, which has an inner projecting wall or ring, *o*, directly around said pipe, and an outer wall or ring, *p*. The latter is shorter than the ring *p*, so as to contain about the same amount of material. The fixed magnet H is like the movable one, and resembles an inverted iron trough fixed around the chamber above the magnet G. A helix, I, of insulated wire, is arranged within both magnets, as shown, and has its ends connected, by conductors *r r*, with a suitable battery. Whenever a current is passed through the helix the magnets will be charged to attract each other, the lower

one being thereby raised against H. The requisite movement of the pawl is thus obtained.

This style of magnets although of particular value for my apparatus is also advantageous for other purposes. The central piece of iron *o* within the helix, connected by iron *x* with the peripheral piece of iron *p* that surrounds the helix I, constitutes, together with the said other parts *p* and I, a magnet which covers in three sides of the helix and whose extremities are opposite poles, of which each is a continuous pole. The same may be of circular, prismatic, oval, or other suitable form.

A weak spring, *s*, sustains and counterbalances to a requisite extent the magnet G. It rests upon a plate, *t*, which is screwed or oth-
79 erwise secured to the gas-pipe. One of the conductors *r* is connected with a metallic spring, *u'*, which is insulated from the plate *t*, but secured to the same. Whenever a part of the circuit is out of order the inspector can, by pressing said spring against the plate *t*, establish a ground-connection and ascertain the section of the line not in order, one pole of the battery being at the same time connected with the ground. In my former invention I provided the gas-pipe with a separate stop-cock for admitting or shutting off the gas by hand in case the electric apparatus became out of order. In the present case I do not require the same, as when the gas is to be admitted or shut off by hand it is only necessary to turn the wheel until the rod E elevates the cap or drops the same over the tube *b*.

The upper part of the gas-pipe is made of porcelain or equivalent insulating material, and has two projecting pins, V V, around which the wires J J, that extend to the burner, are coiled. The burner L is made of lava or other equivalent material. The wires J are incased in gutta-percha or other insulating covering nearly as far as the pins V; but at, around, and above said pins they are made of German silver or other bad heat-conducting wire rod, and uncovered. The pins V serve to support the wires and to allow the coiling of the wire, whereby the heat transmitted to the wires by the flame of the burner is radiated and prevented from injuring the gutta-percha covering below. M is a case or shell, of some non-magnetic material, surrounding and embracing the moving mechanism, as shown, to prevent its injury.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. The combination, with a single fixed coil, of two tubular magnets, one fixed and the other movable, as set forth.

2. The combination of two magnets, G H, with the single helix I, substantially as herein shown and described.

3. The cap D made larger in cross-section than the empty space around and within it, for effecting an increased motion and pressure of the mercury, as specified.

4. The radiating coils of bad heat-conducting wire, supported by pins V on the insulating-pipe, as and for the purpose specified.

5. The insulated spring *u*, connected with one end of the helix wire, and so arranged as to effect a ground connection when required, as set forth.

JNO. VANSANT.

Witnesses:
A. V. BRIESEN.
T. B. MOSHER.

(Here follows drawing, folio 80 and 81.)

82 124773.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in apparatus for lighting and extinguishing gas by electricity. Specification forming part of letters patent No. 124773, dated March 19, 1872.

To all whom it may concern:

Be it known that I, John Vansant, of San Francisco, in the county of San Francisco and State of California, have invented certain improvements in lighting and extinguishing gas by electricity; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

United States letters patent Nos. 113370 and 120469 have been granted to me for improvement in lighting and extinguishing street and other gas lamps by electric currents. My present invention relates to apparatus embodying to a greater or less extent the construction shown in said patents, to the arrangement of the batteries and main and spark-producing circuit wires, and to the construction of the spark-producing line or circuit.

In my present invention I employ, in connection with each lamp-post, a chamber containing mercury or other suitable liquid, into which chamber the inlet gas-pipe enters, while from it leads the tube extending to the lamp or burner. The inlet and outlet tubes or passages and the vessel or chamber into and from which they extend are stationary, and the upper surface of the mercury in its normal position is above the mouth of one of the tubes, so that communication between the inlet and outlet through the chamber is cut off by the mercurial or liquid valve.

In the chamber or a compartment thereof is a piston or weight over the mercury, said piston or weight being connected with the ratchet-wheel, the rotative movement of which in one direction, effected by the movement of the armature of the electric coil at the post, lifts the piston or weight, and permits the whole surface of the mercury to assume one level, thereby bringing the mercury below the mouth of the tube closed by it. Free communication is then and thus established between the gas inlet and outlet, and the gas can pass freely to the burner. When the piston or weight falls, its pressure upon the mercurial surface beneath it presses up the mercury in the compartment into which the mercury-controlled tube enters, bringing the mercury into contact with the mouth of the tube, and shutting off communication between the gas inlet and outlet.

The mechanism for directly operating the ratchet-wheel and producing the rise and fall of the gas-controlling devices is, or may be, like that shown in either of the above-mentioned patents, the feature constituting one part of my present invention being the stationary gas tubes or passages controlled by the movable column of mercury, and the construction of the mechanism for effecting the movement of the mercury, or the rise of one part of the mercury by pressure upon the other part, and the consequent opening and closing of communication between the gas inlet and outlet.

In connection with a series of lamps brought into one electric circuit, or with several series brought into as many circuits, I use one battery

and one Ruhmkorff or induction coil, the opposite poles of the battery forming a circuit with the single series of lamps, or with each of the several series (for operating the gas controlling passages), and also into connection with a circuit embracing the coarse helix of the Ruhmkorff or induction coil. The several circuits are formed through one battery and one induction-coil by using what I term a commutator or switch mechanism, having a rotary insulated arm provided with a series of metallic connections, from each of which one end of an insulated wire extends, the opposite ends of all the wires extending through the tubular hub of the arm, and thence outward and into contact each with some one of a corresponding series of concentric metal rings in the surface of a rotary wheel having a fixed connection with the arm. With each of these rings one end of a metallic spring is in contact, the other end of said spring being in connection with one of the wires of one of the circuits. The rotating arm swings over a stationary insulated disk containing a series of metal pins or plates corresponding to the pins or plates in the rotating arm, each pin or plate being at a distance from the center of the disk corresponding to the distance of one of the plates or pins of the arm; and the several pins or plates of the disk are so arranged that as the arm swings upon the disk the inner plate of the arm first comes into contact with the inner plate of the disk and closes the main or valve-operating circuit (each disk-plate extending through the disk, and connecting with one of the wires of one of the circuits), and then passes from said disk-plate and breaks said circuit, the arm
83 next (but not until after the main circuit is broken) bringing its next pin or plate into contact with the third or outer plate of the disk, and thereby closes the circuit extending through the fine helix of the Ruhmkorff coil. The arm then passes on and makes a connection between its center pin or plate and the corresponding plate of the disk for the purpose of closing the circuit through the coarse helix of the induction coil, making and breaking such connection, while the last-named circuit remains closed to prevent the generation of the spark in the commutator. Through the outer plate of the arm and the outer plate of the disk and the circuit wires connected thereby the circuit is closed which embraces the line extending to each burner from the poles of the fine wire of the induction-coil, the wires of the line coming nearly into contact at the jet-orifice of each burner, so that the electric spark generated by the induction-coil shall ignite the liberated gas. By thus making and breaking the several circuits, one battery and one induction-coil answers for all the lamps of the series.

To bring several series of lamps (each series having its own independent valve-actuating and spark-generating lines) into connection with the same battery and induction-coil, the circuit-closing and breaking disk is made with as many series of irregularly arranged connector pins or plates as there are series of lamps, each series making and breaking connections through the same rotating arm and rotary wheel. The arm and wheel are preferably rotated by a weight or the stress of a spring, and the mechanism is preferably arranged to impart several rotations to the arm for each lighting operation—as, for instance, three rotations—the first effecting a partial rise of the gas-controlling device, and inducing a spark-producing current; the second effecting a further rise of the gas-controlling device, inducing a second electric current in the induction coil, and generating a spark, which will ignite the gas if it shall be sufficiently liberated for ignition; and the third effecting the complete opening of the connection between the inlet and outlet gas passages at each lamp, and inducing a third current in the induction-coil, which cur-

(Here follows drawing, folio 80 and 81.)

82 124773.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in apparatus for lighting and extinguishing gas by electricity. Specification forming part of letters patent No. 124773, dated March 19, 1872.

To all whom it may concern:

Be it known that I, John Vansant, of San Francisco, in the county of San Francisco and State of California, have invented certain improvements in lighting and extinguishing gas by electricity; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

United States letters patent Nos. 113370 and 120469 have been granted to me for improvement in lighting and extinguishing street and other gas lamps by electric currents. My present invention relates to apparatus embodying to a greater or less extent the construction shown in said patents, to the arrangement of the batteries and main and spark-producing circuit wires, and to the construction of the spark-producing line or circuit.

In my present invention I employ, in connection with each lamp-post, a chamber containing mercury or other suitable liquid, into which chamber the inlet gas-pipe enters, while from it leads the tube extending to the lamp or burner. The inlet and outlet tubes or passages and the vessel or chamber into and from which they extend are stationary, and the upper surface of the mercury in its normal position is above the mouth of one of the tubes, so that communication between the inlet and outlet through the chamber is cut off by the mercurial or liquid valve.

In the chamber or a compartment thereof is a piston or weight over the mercury, said piston or weight being connected with the ratchet-wheel, the rotative movement of which in one direction, effected by the movement of the armature of the electric coil at the post, lifts the piston or weight, and permits the whole surface of the mercury to assume one level, thereby bringing the mercury below the mouth of the tube closed by it. Free communication is then and thus established between the gas inlet and outlet, and the gas can pass freely to the burner. When the piston or weight falls, its pressure upon the mercurial surface beneath it presses up the mercury in the compartment into which the mercury-controlled tube enters, bringing the mercury into contact with the mouth of the tube, and shutting off communication between the gas inlet and outlet.

The mechanism for directly operating the ratchet-wheel and producing the rise and fall of the gas-controlling devices is, or may be, like that shown in either of the above-mentioned patents, the feature constituting one part of my present invention being the stationary gas tubes or passages controlled by the movable column of mercury, and the construction of the mechanism for effecting the movement of the mercury, or the rise of one part of the mercury by pressure upon the other part, and the consequent opening and closing of communication between the gas inlet and outlet.

In connection with a series of lamps brought into one electric circuit, or with several series brought into as many circuits, I use one battery

and one Ruhmkorff or induction coil, the opposite poles of the battery forming a circuit with the single series of lamps, or with each of the several series (for operating the gas controlling passages), and also into connection with a circuit embracing the coarse helix of the Ruhmkorff or induction coil. The several circuits are formed through one battery and one induction-coil by using what I term a commutator or switch mechanism, having a rotary insulated arm provided with a series of metallic connections, from each of which one end of an insulated wire extends, the opposite ends of all the wires extending through the tubular hub of the arm, and thence outward and into contact each with some one of a corresponding series of concentric metal rings in the surface of a rotary wheel having a fixed connection with the arm. With each of these rings one end of a metallic spring is in contact, the other end of said spring being in connection with one of the wires of one of the circuits. The rotating arm swings over a stationary insulated disk containing a series of metal pins or plates corresponding to the pins or plates in the rotating arm, each pin or plate being at a distance from the center of the disk corresponding to the distance of one of the plates or pins of the arm; and the several pins or plates of the disk are so arranged that as the arm swings upon the disk the inner plate of the arm first comes into contact with the inner plate of the disk and closes the main or valve operating circuit (each disk-plate extending through the disk, and connecting with one of the wires of one of the circuits), and then passes from said disk-plate and breaks said circuit, the arm
83 next (but not until after the main circuit is broken) bringing its next pin or plate into contact with the third or outer plate of the disk, and thereby closes the circuit extending through the fine helix of the Ruhmkorff coil. The arm then passes on and makes a connection between its center pin or plate and the corresponding plate of the disk for the purpose of closing the circuit through the coarse helix of the induction coil, making and breaking such connection, while the last-named circuit remains closed to prevent the generation of the spark in the commutator. Through the outer plate of the arm and the outer plate of the disk and the circuit wires connected thereby the circuit is closed which embraces the line extending to each burner from the poles of the fine wire of the induction-coil, the wires of the line coming nearly into contact at the jet-orifice of each burner, so that the electric spark generated by the induction-coil shall ignite the liberated gas. By thus making and breaking the several circuits, one battery and one induction-coil answers for all the lamps of the series.

To bring several series of lamps (each series having its own independent valve-actuating and spark-generating lines) into connection with the same battery and induction-coil, the circuit-closing and breaking disk is made with as many series of irregularly arranged connector pins or plates as there are series of lamps, each series making and breaking connections through the same rotating arm and rotary wheel. The arm and wheel are preferably rotated by a weight or the stress of a spring, and the mechanism is preferably arranged to impart several rotations to the arm for each lighting operation—as, for instance, three rotations—the first effecting a partial rise of the gas-controlling device, and inducing a spark-producing current; the second effecting a further rise of the gas-controlling device, inducing a second electric current in the induction coil, and generating a spark, which will ignite the gas if it shall be sufficiently liberated for ignition; and the third effecting the complete opening of the connection between the inlet and outlet gas passages at each lamp, and inducing a third current in the induction-coil, which cur-

rent will generate a spark, which will ignite the gas at each burner if not lighted by the previous spark.

To extinguish the gas, the arm is again thrown around sufficiently far to close the main circuit, the movement of the armature of each magnet at each lamp effecting the liberation of the gas-controlling device, and cutting off communication between the gas inlet and outlet, which, of course, cuts off the supply of gas and extinguishes the flame.

The combination of one battery with all of the lamps of a series by a circuit that works the armature of the magnet at each lamp, and through it controls the flow of gas to the burner, with one induction-coil for all of the lamps, and with one spark-producing line for all of the lamps, constitute one of the features of this invention. Another feature consists in the specific organization of the circuit-closing and breaking mechanism for such system; and another feature consists in the assemblage of several series of lamps in such system, each series having its own independent main or valve-controlling circuit and spark-generating circuit, but all the series being operated by the single battery and its induction-coil.

In this connection, much information concerning the division and arrangement of the electric circuits may be found in the "Exposé des Applications de L'Electricité, par Du Moncel," second edition, Paris, 1857, 3d vol., between pages 240 and 253 and between pages 291 and 301; and I consider my invention as confined to the specified circuit divisions and mechanical arrangements described further on in the specification and summed up in the claiming clauses.

For conveying the electric current for igniting the gas I use a very fine metallic wire, made of any suitable metal, giving to such wire the requisite strength and body sufficient to enable it to be freely handled and laid by covering it with a body of gutta-percha or similar coating, which coating is preferably covered with cotton, and which may be varnished or coated with tar or other material to protect the line from the action of air. The gutta-percha or similar coating insulates the wire, but is applied in a body sufficient to protect and build up the fine wire, which, if simply covered by a thin coating, would have neither body sufficient to enable it to be readily laid and to keep it from kinking, nor strength sufficient to keep it from attenuating or breaking.

I have found that the very fine wire thus built up and protected is a reliable conduit for high tension electricity to light a system of lamps relatively at great distances apart, whereas with a coarse wire, however protected, it is impracticable to attain this very desirable result—namely, that of positively insuring the lighting of all of the far-separated lamps of a system by an induced electric current—as the large sectional and superficial area of the wire dissipates the current. With the very fine wire the current remains intensified and preserves its power unimpaired. What is meant herein in this connection by the term "fine wire" is such wire as is used at the present time in the exterior helix of an ordinary induction-coil.

The drawing represents an apparatus and parts of an apparatus embodying my improvements.

A shows a plan of the same. B and C are side views of the switch mechanism. D is a plan and E an elevation of the rotary wheel of the switch mechanism. F shows the gas-valve-operating mechanism, and the location and arrangement of the spark-producing conductor. G and H show the construction of the wire or line for conveying the high-tension electricity to light the burners.

84 *a b c* denote a series of lamps to be lighted, which series may be composed of any number of lamps. *d e f* denote a second series (embracing any number of lamps), the line or circuit of which is independent of the first series, except in that they are embraced and operated by the same battery. The system may embrace any number of such series. *g* denotes the battery; *h* the induction-coil connected therewith. *i* denotes the main or valve-operating line, and *k* the spark-line of the first series of lamps; i^1, the main, and k^1 the spark-line of the second series of lamps. Each lamp is provided with a magnetic coil, and with an armature hinged by iron to the electro-magnet and raised by a spring, and drawn down by the electro-magnet when the main circuit is closed; this armature having jointed to it a drag pawl, which engages with a ratchet wheel, each movement of the armature imparting rotative movement to the wheel, and said wheel having projecting from one of its faces a series of lifter-pins, one of which is at all times in position to lift a hook at the upper end of a rod. Such mechanism is or may be not unlike that shown in either of my patents above mentioned; but in this mechanism the liquid valve is different. The gas-tube connects with the lamp at *o*, and from the tube or chamber *n* a stationary inlet-tube, *p*, extends up into a chamber, *q*. From the lower part of this chamber another tube, *r*, leads to the burner. In this chamber, or in a compartment thereof, or a surrounding chamber, is a weight or piston, *s*, to which is attached the rod, having at its top the hook s^1 that is lifted by the ratchet-wheel pins *p*. In the chamber is a quantity of mercury or other suitable liquid, the upper surface of which, when the piston or weight is raised, is below the level of the burner-tube *r*, so that gas entering the chamber through tube *p* can escape therefrom to the burner through tube *r*. But when the weight or piston is down it displaces the mercury beneath it and raises the level of the part thereof surrounding the tube *r*, carrying it above the bottom of the tube *r*, and closing the tube *r* to the passage of gas. This is the normal position of the parts. When the circuit is closed the pawl actuates the ratchet, raising the hook *l* and lifting the piston, and when, by the first, second, or third movement of the armature the movement of the piston is such that the gas can escape to the burner, the spark simultaneously generated will inflame the gas, the mechanism being so arranged that the next time the circuit is closed the hook *l* is freed from the pin *t*, releasing the weight, which then falls, displacing the mercury and shutting the mouth of the tube *r*; this last closing of the circuit being effected for the purpose of extinguishing the gas.

x x^1 denote the conductors for the current producing the spark that ignites the escaping gas. These conductors are supported on projections from the insulating porcelain tube 2, and have their ends held in position, just at the base of the slot in the burner, by the projections 3 $3'$, against which they firmly press. This location of the spark points of the electric conductors at the bottom of the slot, and not over the top of it, in the usual place, is highly important, since it is at the bottom that the issuing gas first mingles with the surrounding air, forming thus a compound capable of being ignited by an electric spark, though the latter may be of exceeding shortness; while if the points were as nearly approximated over the slot the spark would strike continuously through the pure carbo-hydrogen gas without inflaming it. Shortening the spark increases the number of lamps that can be lighted by an apparatus of a given size. If it be desirable, one of the conductors, as *x*, may be attached directly to the gas tip, which in this case should be of metal, and the other conductor have its end placed, as before, very near to the bot-

rent will generate a spark, which will ignite the gas at each burner if not lighted by the previous spark.

To extinguish the gas, the arm is again thrown around sufficiently far to close the main circuit, the movement of the armature of each magnet at each lamp effecting the liberation of the gas-controlling device, and cutting off communication between the gas inlet and outlet, which, of course, cuts off the supply of gas and extinguishes the flame.

The combination of one battery with all of the lamps of a series by a circuit that works the armature of the magnet at each lamp, and through it controls the flow of gas to the burner, with one induction-coil for all of the lamps, and with one spark-producing line for all of the lamps, constitute one of the features of this invention. Another feature consists in the specific organization of the circuit-closing and breaking mechanism for such system; and another feature consists in the assemblage of several series of lamps in such system, each series having its own independent main or valve-controlling circuit and spark-generating circuit, but all the series being operated by the single battery and its induction-coil.

In this connection, much information concerning the division and arrangement of the electric circuits may be found in the "Exposé des Applications de L'Electricité, par Du Moncel," second edition, Paris, 1857, 3d vol., between pages 240 and 253 and between pages 291 and 301; and I consider my invention as confined to the specified circuit divisions and mechanical arrangements described further on in the specification and summed up in the claiming clauses.

For conveying the electric current for igniting the gas I use a very fine metallic wire, made of any suitable metal, giving to such wire the requisite strength and body sufficient to enable it to be freely handled and laid by covering it with a body of gutta-percha or similar coating, which coating is preferably covered with cotton, and which may be varnished or coated with tar or other material to protect the line from the action of air. The gutta-percha or similar coating insulates the wire, but is applied in a body sufficient to protect and build up the fine wire, which, if simply covered by a thin coating, would have neither body sufficient to enable it to be readily laid and to keep it from kinking, nor strength sufficient to keep it from attenuating or breaking.

I have found that the very fine wire thus built up and protected is a reliable conduit for high tension electricity to light a system of lamps relatively at great distances apart, whereas with a coarse wire, however protected, it is impracticable to attain this very desirable result—namely, that of positively insuring the lighting of all of the far-separated lamps of a system by an induced electric current—as the large sectional and superficial area of the wire dissipates the current. With the very fine wire the current remains intensified and preserves its power unimpaired. What is meant herein in this connection by the term "fine wire" is such wire as is used at the present time in the exterior helix of an ordinary induction-coil.

The drawing represents an apparatus and parts of an apparatus embodying my improvements.

A shows a plan of the same. B and C are side views of the switch mechanism. D is a plan and E an elevation of the rotary wheel of the switch mechanism. F shows the gas-valve-operating mechanism, and the location and arrangement of the spark-producing conductor. G and H show the construction of the wire or line for conveying the high-tension electricity to light the burners.

or with soft-

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x x^1 denote the conductors for the current producing the spark that ignites the escaping gas. These conductors are supported on projections from the insulating porcelain tube 2, and have their ends held in position, just at the base of the slot in the burner, by the projections 3 3′, against which they firmly press. This location of the spark points of the electric conductors at the bottom of the slot, and not over the top of it, in the usual place, is highly important, since it is at the bottom that the issuing gas first mingles with the surrounding air, forming thus a compound capable of being ignited by an electric spark, though the latter may be of exceeding shortness; while if the points were as nearly approximated over the slot the spark would strike continuously through the pure carbo-hydrogen gas without inflaming it. Shortening the spark increases the number of lamps that can be lighted by an apparatus of a given size. If it be desirable, one of the conductors, as *x*, may be attached directly to the gas tip, which in this case should be of metal, and the other conductor have its end placed, as before, very near to the bot-

tom of the slot, the spark then striking into the barner, but through the explosive mixture of air and gas.

In the work by Du Moncel, entitled Exposé les Applications de L'Electricité, 2d vol., page 208 of the 1st edition, published in Paris in 1854, may be found a description of a mode of lighting from a distance the night lantern of the Observatory of Paris. In this mode two insulated platinum wires were placed just above a gas-burner tip, with the ends of the wires a little distance apart, and said wires were in communication with gutta-percha-covered wires, which extended to a Ruhmkorff coil placed at considerable distance from the burner. When the gas was turned on it was lighted whenever the spark was produced, at will. But my invention may be said to be an improvement upon Du Moncel's description in the matter of the location of the spark-producing points, and in the reduction of the size of the conducting wires insulated and strengthened.

The wire that conducts the electric-spark current is shown at G and H, the wire *m* being a very fine wire, covered by the gutta-percha *y*, which gives body to the line, and with the wound covering *z* imparts tensile strength, the rigidity imparted by the covering enabling the line to be freely handled in laying without attenuating, kinking, or breaking the wire. The fine wire keeps the current condensed or intensified in a small sectional area, and thus insures its passage through the wire without tendency to dissipation of the electric fluid.

The various circuits are intermittently or successively completed and broken through the switch mechanism. In this mechanism *u* denotes the stationary disk, insulated, but made with the series of connectors *v w x*, one set for each circuit or series of lamps. Each connection extends through the disk, and with the under surface of each some one of the circuit-wires connects. With each inner plate the end of one of the main circuit-wires *i* or i^1 connects, as seen at a^2; with the next the wire connects that extends to one pole of the Ruhmkorff coil, as seen at b^2; and with the outer one the wire of the spark-line, as seen at c^2.

85 d^2 denotes the movable arm of the switch, this arm being made with three insulated wires, e^2 f^2 g^2, the inner ends of all of which extend through the tubular hub h^2, and through it make connection—one with the inner metal ring i^2, one with the center metal ring k^2, and one with the outer metal ring l^2, of three insulated rings in a wheel, m^2, which is connected to and rotates with the arm d^2. Three stationary springs, n^2 o^2 p^2, are fixed to the under side of the disk *u*, their flexible ends making contact, each with one of the rings i^2 k^2 l^2, and their opposite ends each with some one of the circuit-wires. One ring is connected by its spring n^2 with the wire q^2, leading to one pole of the battery; another ring, by its spring o^2, with a wire r^2, connecting s^2 with the wire q^2, leading to the same pole of the battery; and the other ring, by its spring p^2, with the wire t^2 leading to one pole of the Ruhmkorff coil; so that as the arm is rotated the several connections to close the several circuits are successively made as before described, the continued rotation of the arm completing the circuits, operating the valves, and lighting the lamps of all of the series successively—all the circuits for each series of lamps, and all the circuits for the several series in succession, being thus operated by the single battery.

Any suitable mechanism may be employed for automatically imparting the requisite number of rotative movements to the arm d^2, and for making the movements of the arm regular and without fluctuations.

The courses of the respective electric currents are indicated by the dotted lines.

1 claim—

1. In combination with each burner of a connected system or series of gas-lamps, a mercury or liquid containing chamber and gas inlet or outlet connected therewith, in such manner that by displacement, or rise and fall of the mercury in the chamber, or one part or compartment thereof, connection with the burner-passage is cut off or established.

2. Also, the stationary mercury-chamber, the stationary inlet and outlet, and the piston or weight for displacing the mercury, the whole being arranged, and the piston or weight operated, substantially as shown and described.

3. Also, the use of a fine metallic wire insulated and strengthened, substantially as described, for connecting together the burners of street-lamps, and conveying to them induced or frictional electricity, for the purpose of igniting the gas by a spark, the said fine wire being in size substantially such as is used in the exterior helix of an ordinary induction-coil, and may be considered an extension or continuation thereof.

3. Also, the combination of the single battery, the main circuit embracing the lamps of a single series, and working the armatures of the magnets of the respective lamps to control the supply of gas to the burner, the single induction-coil, and the circuit connecting it with the battery, and the high tension or igniting electric line or circuit, the main circuit and the inducing circuit being both worked by the single battery.

5. Also, in combination with the single battery and single induction-coil, a system of lamps composed of several series, each of which series has its own independent main and ignition circuit-lines connecting with the single battery and induction-coil.

6. Also, the movable arm d^2, plate-connecting wires e^2 f^2 g^2, wheel n, and rings i^2 k^2 l^2, in combination with the disk or plate u, and its plates v w x, connecting with the respective circuits, and alternately with the plates or pins of the arm, to successively establish or close and break the respective circuits, substantially as described.

7. Also, in combination with the circuit-closing and breaking disk u^2, arm d^2, and wheel n^2, the duplicate series of connecting plates v w x for the several circuits of a system embracing independent series of lamps, substantially as described.

8. Also, two conductors for induced or frictional electricity with their spark-points near together, and located at the base of the slot in a gas-burner, where the air mingles with the gas escaping, thereby forming an explosive compound—said arrangement being for the purpose of shortening the spark, locating it in an explosive compound, and rendering the ignition more certain.

JNO. VANSANT.

Witnesses:
FRANCIS GOULD,
M. W. FROTHINGHAM.

(Here follows drawing, folios 86 and 87.)

88 127,000.

UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in apparatus for lighting gas by electrical sparks. Specification forming part of letters patent No. 127,000, dated May 21, 1872.

Specification describing certain Improvements in Apparatus for Producing Electric Sparks, invented by John Vansant, of San Francisco, in the county of Francisco, State of California.

This invention relates to an improved combination of apparatus to

generate electric sparks simultaneously at two or more distant places by induction from one and the same current of low-tension electricity, avoiding thus the difficulties of conveying induced or static electricity between distant localities, where sparks may be required for igniting gas-jets, even when numerous and widely separated, as in street-lamps, and for exploding mines in military operations, blasting, and other purposes. My invention consists of the combination of a conducting-wire, coiled at several different parts of its length into primary inducing-helices containing cores of soft iron; a galvanic-battery or other source of dynamic electricity united in circuit with the coiled conducting-wire or series of connected primary helices; a series of separate, independent, secondary induction-helices, of fine insulated wire, for furnishing sparks; an automatic circuit-breaker for rapidly making and breaking the circuit of the coiled conducting-wire; and a condenser of metallic foil, attached on both sides of the rupture-point in the conducting-wire, for heightening the effects of the induced current.

Figure 1 is a view, in perspective, of an apparatus embodying my invention. Fig. 2 is a vertical central section of a combined secondary and primary helix and core, the line *x x*, Fig. 1, indicating the plane of section.

H in the drawing is a galvanic battery, which may be preferably constructed of pairs of carbon and zinc plates, arranged to be easily immersed in or withdrawn from a solution of bichromate of potash in dilute sulphuric acid. K is an automatic circuit-breaker, composed of an electro-magnet, *m*, which, when excited, attracts an armature on one end of a vibrating lever, lifting thereby the opposite bent end from contact with mercury contained in a glass cup and covered by alcohol. This action breaks the circuit composed of the battery H, the circuit-breaker K, the coil of the electro-magnet *m*, and the connected series of electro-magnetic helices *b c d*, to be described below. The current being interrupted, the attraction of the electro-magnet *m* ceases, and the lever is thrown, by the elasticity of a spring, to which it is attached as a fulcrum, so that its bent end is again in the mercury, completing its circuit. This vibration of the lever, rapidly making and breaking the circuit, continues so long as the electricity passes. A denotes a continuous electric-circuit wire, which may be of greater or less length, and which is coiled, at any required intervals, into helices *b c d* having their spirals properly insulated. A core of soft iron, *i*, preferably of iron wires, is placed within each of these helices in order to increase, by its electro-magnetic induction, the force of the current in the secondary coils. One end of the wire A is attached to the spring of the break K and the other end to the wire around the electro-magnet *m*; or this last end may be buried and the ground used as a part of the circuit. *e f g* are secondary coils, each formed of a long, fine, insulated wire. They surround the helices *b c d*, but have no metallic connection with them, or with one another. They are separate independent coils, each having its own distinct current; but all the currents generated by induction are generated at the same time from the single current traversing the circuit-wire A and the helices *b c d*. These induced currents produce sparks at the two ends of the wire forming each of the coils *e f g*, and these ends can be placed so as to use the sparks for lighting gas-jets, as shown at P P', or for exploding a proper cartridge in a mine, or in blasting, as represented at *r*. L is a condenser composed of alternate sheets of tin-foil and waxed paper, or its equivalent, piled together, and so arranged that the end of every other sheet of tin-foil projects beyond the paper. These projecting portions are all brought together at each

end of the pile of sheets, and connected, one series with the wire from the battery to the mercury-cup, the other series to the spring of the break K, the point of rupture of the circuit being between.

In operating the apparatus the course of the electricity will be from the positive pole of the battery to the mercury in the glass cup; thence along the bent lever to the spring of the break; thence through the continuous circuit-wire and helices *b c d* to the wire of the electro-magnet *m* (or to the earth, the wire of the electro-magnet *m* being also
89 buried); and thence to the negative pole of the battery. At the moment of rupture of the circuit a portion of the extra current is used to charge the condenser, thus lessening the extra spark at the surface of the mercury, breaking the current more suddenly, and increasing the length of the induction-sparks at the terminals of the secondary coils.

Having thus described my invention, I will state that I make no claim to the combination of a galvanic battery, a circuit-breaker, a condenser, and a single helix of coarse wire inclosing an iron core, with a single coil of fine wire, since I am aware that such a combination is not new; but

I claim as my invention and desire to secure by letters patent—

The combination of a source of dynamic electricity, H, an automatic circuit-breaker, K, a condenser, L, and a series of connected electro-magnetic primary coils, *b c d*, with a series of disconnected secondary induction-coils, *e f g*, substantially in the manner and for the purposes set forth.

JOHN VANSANT.

Witnesses:
C. E. HUDSON,
L. MYGATT.

(Here follow drawings, folios 90, 91, 92, and 93.)

94 UNITED STATES PATENT OFFICE.

John Vansant, of San Francisco, California. Improvement in electrical gas-lighting apparatus. Specification forming part of letters patent No. 139,692, dated June 10, 1873; application filed February 3, 1873.

To all whom it may concern:

Be it known that I, John Vansant, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful improvements in apparatus for lighting and extinguishing gas by electricity; and I hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those who are skilled to make and use the same.

United States letters patent Nos. 113,370, and 120,469, and 124,773 have been granted to me for improvements in lighting and extinguishing street and other gas lamps by electric agency, and letters patent No. 127,000 for improved apparatus for lighting gas by electrical sparks.

My present invention relates to apparatus embodying to a certain extent the principles and construction shown in said patents; to an improved arrangement of the circuit line for street-lamps; to a novel circuit-breaker, and the switch for connecting it with the rest of the apparatus; and for new devices for controlling the gas at each lamp.

In my present invention I employ either of the following methods for

admitting gas to a burner or shutting it off therefrom: In a chamber containing mercury or other suitable liquid, the inlet-gas tube enters from the main pipe, and is curved so that its mouth presents downward, and is a little above the surface of the liquid when the latter is at its natural level. Surrounding the inlet-tube is a straight tube, the lower end of which is immersed in the liquid, and from the upper end an opening exists directly to the burner. The chamber, outside of the last-named tube and above the liquid, contains a movable weight, which is or may be the lower one of two electro-magnets (the upper being fixed), that may be simultaneously excited by the passage of an electric current through a wire coil surrounding both. This lower electro-magnet is in connection, by means of a rod, with a catch above the chamber, which catch, itself the armature of a third electro-magnet, may support the rod and said lower magnet, or let them drop, according as the third electro-magnet is passive or active. When the lower magnet is released it falls into the liquid and displaces a quantity of it, varying with its specific gravity, and the displaced liquid rises around and within the mouth of the inlet-gas tube, and stops the flow of gas to the burner. Should the current be now sent through the above-mentioned wire coil the two electro-magnets within it mutually attract one another, and the lower is suddenly elevated out of the liquid and is caught and held there by the armature-catch before mentioned, while the liquid at the same time resumes its level and opens a passage for the gas to the burner. If a current be now passed through the third electro-magnet alone the armature-catch is withdrawn, and the displacing-weight, falling into the liquid, closes the mouth of the inlet-tube and excludes the gas.

One feature of this part of my invention is the direct employment of the force of electro-magnetism, without intermediate mechanism, to raise the displacing-weight out of the liquid; and another feature is the instantaneous admission of the gas, by this means, to the burner; and still another feature is withdrawing the supporting armature-catch by the direct action of an independent electro-magnet, thus effecting, by the fall of the weight and simultaneous rise of the liquid, the instantaneous arrest of the escaping gas.

Instead of employing an electro-magnet as the liquid-displacing weight, a piece of iron, unmagnetized by the direct influence of the wire coil, may be used; or a permanent steel magnet may be employed as the weight, and its fall caused by a reversal in direction of the current sent through the wire coil of the associated electro-magnet, rendering, in this latter case, the armature catch above spoken of, or any other catch, unnecessary, and requiring, to produce a movement of the weight in either direction, only the use of a single line of wire. But the objection to associating permanent magnets with electro-magnets is, the demagnetizing of the former by the latter. This objection can, however, be overcome in the present case, and a catch dispensed with, permanent magnetism being substituted for it, as the retaining agent of the weight, by employing two separate and distinct wire coils, one surrounding the permanent magnet, and the other the electro-magnet. When electric currents are passed through both coils simultaneously in the same direction, attraction will ensue between the permanent and electro-magnetic cores, and one or the other will be moved, according as it may be made the fixed core or the movable weight, and, having come in contact with its fellow, will be retained in position by the permanent magnetism after the electric currents have ceased to flow. If, now, two currents be again made to traverse the two coils simul-

taneously, but the current passing through the coil around the electro-magnet have its former direction reversed, while the directions of the other current in the coil around the permanent magnet be the same as the first, then repulsion will take place without demagnetization, and the two magnetic cores will be separated, and to such a distance that the permanent magnetism of one will be insufficient to draw the two together again (and thus readmit the gas) after the currents are discontinued. This combination requires for its operation two line-wires connecting the lamps when the reversal of the current is effected at a distant station. In place of using a liquid as the means of opening and closing communication between a gas pipe and burner, I also employ for that purpose a slide-valve composed of two solid pieces of metal, glass, or other suitable material, one, at least, of which is perforated, and both are interposed as a diaphragm between the source of supply of the gas and the burner. A surface of each piece is ground to fit accurately one to the other, and they slip or slide upon one another, and close or open the aperture above referred to, by bringing a continuous surface or a hole to correspond with it, or by withdrawing the edge of the sliding piece beyond the aperture; and these movements are accomplished by one electric or magnetic impulse imparted to the valve, so as to admit or exclude the gas instantaneously. As I make these ground surfaces perfectly flat (though curved surfaces may be used), of non-corrodible substances, use no lubricating material between them, and press them together only by the weight of the slide itself (though a spring may be used), there is but little adhesion, and no dust or deposit from the gas can get between them, since they are always in air-tight apposition. This slide-valve, with its seat, is inclosed in a tight valve-case a little larger in every way than it is, and in the top of this case is an opening direct to the gas-burner, while out of the bottom passes the gas-tube to the source of supply. On two sides of this valve-case are situated the poles, or a pole, of two independent electro-magnets. One of these poles or pairs of poles is an extension of the electro-magnet of the induction-coil, to be hereafter described, and which furnishes the spark to ignite the gas. The sliding valve is or may be square or oblong, and may be pivoted loosely at one corner to its seat, and has on each of its sides, opposite to the electro-magnetic poles, a piece of iron attached as an armature to the non-magnetic material of which the valve is mainly composed. This iron is for the purpose of being attracted and moving the slide toward the active magnet, while the non-magnetic material prevents the conduction of the magnetism to the pair of unexcited poles on the opposite side, and the consequent adhesion that would then ensue. If the slide be made entirely of iron, it must always be kept some distance from the poles of both electro-magnets by the interposition of a non-magnetic substance; otherwise it may adhere to the poles of the passive magnet, or actually move away from the active one; but this defeats one purpose I have in view, viz, to use the residual magnetism to prevent slipping of the valve by gravity if the lamp should be much inclined from the perpendicular, and which I accomplish by using the compound slide. A slide of magnetized steel may also be employed, and, in this instance, but one electro-magnet, with a pole on each side of the case, and one main circuit-wire will be required, the current being reversed at the station, and the forces of repulsion and attraction being alternately evoked on different sides to move the valve in opposite directions. A compound slide of which an electro-magnet forms a part may also be used within the valve-case, which then should be somewhat more elongated. The two poles of the electro-magnetic core of the in-

duction-coil which is used for lighting may be brought to act on one end or both ends of the electro-magnetic slide, and motion will thus be imparted to it to admit or exclude the gas, accordingly as the two independent currents are sent simultaneously in the same direction or in opposite directions, around the core and the slide.

The chief features of this part of my invention are, the peculiar construction of the several slide-valves; the opening and closing of the valves by the direct action thereon of electro magnetism, without intermediate moving mechanism (though I do not limit myself to this particular method of applying electro-magnetism to move these slide-valves); the instantaneous admission and exclusion of gas to and from a burner by an electro-magnetical machine having but one moving part—i. e., the valve; the use of an electric helix around a permanent magnet to prevent its demagnetization when combined with an electro-magnet whose poles may be reversod; the employment of both poles of the iron core of an induction-coil for attracting one armature.

The method I use for lighting the gas as it escapes from the burner is by passing an electric spark across the combustible mixture of air and gas, as it is found just at the base of the slit in a common lava or other tip. The igniting sparks for each lamp of a series are generated by an independent induction-coil at every lamp, and within or
96 without each induction-coil is one of a connected series of inducing helices, which also serves to excite the magnet that gives motion to the gas-admitting devices.

The manner in which the inducing wire, the induction coils, the circuit-breaker and condenser are combined to produce the igniting sparks is or may be, substantially, that described in my patent No. 127,000, before referred to; but the arrangement of the inducing and induction helices, in relation to the mechanism for admitting and shutting off the gas, is peculiar to this invention as is, also, the relative position that said helices may have to each other. The advantage of placing the inducing helix exterior to the induction-coil arises from the greater proximity of the induction-coil to the magnetic core, and, also, from the diminution by this arrangement of the inductive influence that would otherwise be expended in the inducing-helix, and which increases the injurious spark at the break-piece.

Another part of my invention is the insulation of the electro gas-lamp (as I will, for convenience, style the entire machine placed in a street-lantern for lighting and extinguishing the gas therein by electric agency) from the gas-pipe to which it is attached, and, consequently, from the ground. This important feature confines almost every possible accident which may occur to one or more of a connected series of electro gas-lamps to the particular lamp or lamps affected. This insulation is accomplished by inserting between the base of an electro gas-lamp and the gas-pipe a piece of dry wood or other suitable electrically non-conducting substance, in such a way that no metallic contact exists between the pipe and lamp, while at the same time their union is secured, and the gas can pass into the lamp by a perforation through the insulating material. The insulation of the electro gas-lamp renders inoperative the device shown in two of my aforesaid patents for using each lamp-post as a testing-point in case of accidents to the main line connecting together many street-lamps, especially if the line be subterranean; but, in my present apparatus I attain the same end by even simpler means, namely, joining an uncovered piece of metal, as a ring of brass, to the exit-wire of each electro-magnetic coil, just below the base of the lamp. When, for certain faults, the line is to be tested, it

is only necessary that the inspector should apply one end of a curved metallic rod or wire against the aforesaid ring, and the other end against the gas-pipe, below its insulated junction with the lamp, and a ground connection is at once established.

In my patent No. 124,773 is shown a method of constructing a subterranean line for connecting together several series of street-lamps with a central station; but in my present invention, the use of an aerial or overhead line of wire is often desirable for the purpose just mentioned. This aerial line may be made of ordinary uncovered telegraph wire, or the wire may be wrapped and tarred, or more or less insulated in any other way, if it be deemed necessary, to prevent metallic contact with the foliage of trees, &c. I support and secure the wires at each lamp-post, or other support for a street-lamp, by means of insulators of glass, porcelain, vulcanite, or other suitable material, attached to projecting arms extending out from the lamp-post or support: and between the lamp-posts, if necessary, I attach the wires to similar insulators placed on a pole sufficiently high to keep the line from injury, or the line between the posts may be attached to insulators on the adjacent buildings.

The feature of this part of my invention is attaching insulators to lamp-posts or other supports for street lamps, for the purpose of sustaining wires connecting together electrical machinery at different lamp-posts, and also for taking off the strain due to the weight and tension of the wires from the said electrical machinery.

As the apparatus I am describing is designed mainly to light and extinguish the street-lamps of cities, I propose to send out the electric wires for this purpose from one or more convenient stations, the number depending upon the size of the city. The lamps can then be joined together in sections or series of, say, fifty, more or less, and those of each series or section lighted or extinguished simultaneously and instantaneously, while the different series or sections are lighted and put out in rapid succession.

To effect this, certain machinery is required at the station, viz, a voltaic battery, or some other source of dynamic electricity, an electrotome, or current-breaker, and a switch, or circuit-changer. The battery may be made of any convenient form or material. I use carbon and zinc plates immersed in solution of bichromate of potash and sulphuric acid, without porous cells, and have the plates so suspended and balanced above the acid solution that a large number may be quickly lowered at the same time into it, or raised from it. A magneto electric machine, or a thermo-electric battery, or an electro-magnetic machine, may be used, if desired, to produce the current that operates the series of electro gas-lamps.

The electrotome I have invented and used as part of the lightning apparatus, consists of a helix having within it, freely movable, a core of iron or magnetized steel, in regard to which the helix is adjustable longitudinally. The core rests vertically on a metallic spring, one end of which is or may be connected with the helix-wire, while the other end touches a metallic surface that may be put in communication with one pole of a voltaic battery. Through an opening in the spring projects a pin, which is firmly attached to the core, and freely movable in the opening till arrested by a head too large to pass through. When
97 an electric current is sent through the helix and spring, by bringing the opposite battery-pole in contact with the free end of the helix-wire the core will be suddenly drawn further into the helix, until the head of the attached pin strikes a blow upon the spring, the end of which is thereby separated from the metal surface it touches, and the current is

broken. The electricity ceasing to flow in the helix, the core drops by gravity, but the spring returns to its normal position by elasticity, and closes the circuit for an instant before the momentum of the falling core can be overcome by the now flowing current, and for another instant, while the core is rising again to strike the blow that breaks the circuit. These intervals of time suffice for the current to charge well the magnets of a connected series of electro gas-lamps, when they are included in a circuit with the electrotome, and to produce at the lamps the maximum secondary effects that the primary current can afford. The magnetic influence of the helix on the included core can be perfectly graduated by elevating or depressing the helix, so that a fewer or greater number of the spiral turns of wire shall surround the core; this adapts one electrotome to currents of various powers. The hammer-like blow which the spring receives when the core is drawn within the helix causes a very abrupt breaking of the current, and a consequent increased intensity of the induction obtainable therefrom. The induction effects in a connected series of electro gas-lamps may be further heightened by associating a condenser with the electrotome connecting one of the two series of metallic sheets in the condenser on either side of the rupture point in the electrotome, and as near to it as convenient. These induction effects may be still further increased by placing the poles of a strong magnet close on either side of the rupture point of the electrotome, so that the extra spark shall be suddenly broken by the influence of the magnet.

Other kinds of electrotomes, moved automatically by the current, may be used in combination with the apparatus described in this specification; and, also, mechanical electrotomes having wheel-work driven by the stress of a spring, or manual or other force, beside that of the current itself, may be employed in such combination.

One of the latter kind, consisting of a metal disk, with insulated spaces around its periphery, turned rapidly by any of the means above mentioned, and having a metallic spring pressed lightly against its dentated edge, if introduced into a circuit of gas lamps, instead of my automatic percussive electrotome before described, and connected with the switch so that the current passing from the disk to the spring shall be often interrupted in every revolution of the disk, will bring about the induction necessary to light the lamps.

The chief features of this part of my invention are the plan of moving an electro or permanent magnet within a fixed coil, for the purpose of rupturing the circuit of an induction apparatus; the plan of breaking the circuit automatically by a blow produced by the action of the current. The particular mode of continuing contact between two solid metal surfaces transmitting a current for a sufficient time to enable any electro-magnets that may be included in the electric circuit to be fully charged before the circuit is suddenly broken by the action of the electricity itself; the plan of regulating the quantity of electricity affecting the movable magnet of the electrotome by changing the relative position of the helix and magnet, the current passing through the circuit being at the same time unchanged, thus adapting one electrotome to currents or batteries of various powers; the method of using a mechanical electrotome with the connected series of primary inducing-coils as disposed in my apparatus.

The switch or mechanism for shifting the currents that I use in my apparatus consists of a non conducting disk or table, over the surface of which passes a rotating radial arm, having firmly connected with its central end, below the disk, a metal plate, on which presses a spring,

which keeps the plate in constant communication with one pole of the voltaic battery while the arm is turning. From the plate, along the top of the arm, for about half its length, extends a metal spring, which carries on its end a metallic pin that passes through the arm and projects a little below its under surface, in order to make and break contact, as required, with one or more series of metallic pins or plates arranged around the upper surface of the disk, and connected by wires with one or more corresponding series of street or electro gas-lamps, and with one electrotome. The rotating arm, also, has on its upper side another shorter spring, which is insulated from all the metallic connections of the switch, except when a pin on each end of the spring, and passing through the arm, shall be brought into contact with two of the pins or plates of the disk.

Each series of the contact pins or plates of the disk is arranged near together on a section cut from the disk, but fitted in its place and hinged so as to be dropped, when required, out of the way of the rotating arm, and thus leave out of connection with the battery the particular series of electro gas-lamps, joined to the pins or plates on that swinging disk section. The series of contact-pins on every disk section numbers five, three of these being on the line of a circle drawn concentric with the circumference of the disk, and the other two placed on a radial line passing through the last of the three pins. The first of the three pins is connected with a wire joining together the electro-magnets that are instrumental in extinguishing the gas at each of a series of lamps; the second pin is connected with a wire joining together the electro-magnets that are employed to let on the gas to the burners of the same series
98 of lamps, and the last of the three pins is connected with a wire proceeding to the electrotome. The outer pin of the two on the radial line is attached to the return-wire from the electrotome, and the inner pin is connected by a short wire to the second pin of the three above mentioned.

When the radial arm swings around the disk from left to right the battery-current is conveyed thereby, successively, to each contact-pin on a disk-section, and also to each series of contact-pins, producing in every series of connected electro gas-lamps, in regular order, the admission and lighting of the gas. When the arm swings in the opposite direction every series of lamps, in succession, is extinguished by the valve-motion arresting the flow of gas, this result occurring upon the completion of the circuit through the last contact-pin (formerly the first) now reached on each disk-section.

The rotary movement of the radial arm of the switch may be produced by hand, or by the pressure of a spring or weight acting thereon through a system of cog-wheels, so combined that motion in a constant direction given to two wheels fixed on a horizontal axle shall impart rotation to the left or right to a single wheel placed between them on a vertical axis, accordingly as one or other of the two wheels separately gears into the single one.

One feature of this part of my invention is the arrangement of the contact-pins of the switch with the electrotome and main circuit-wire, so that the same wire at one time conducts a continued current that opens the valves, and at another time an interrupted current to produce the induction that lights the admitted gas; and a second feature is the combination of the short insulated spring on the switch-arm with the disk-pins, electrotome, and main circuit-line, in such a manner that one electrotome answers to interrupt the current for successive series of lamps; and a third feature is placing the disk-pins in such order, in

relation to the respective line-wires of each connected series of lamps, that the rotation of the arm in one direction admits the gas and lights it, and in the opposite direction, over the same pins, shuts off the gas, and thereby, of course, extinguishes it.

I prefer to use the ground to complete the circuit through my apparatus in case of lighting street-lamps, though a complete metallic circuit may be employed. I also make use of a very feeble battery (of insufficient power to operate the lamp-valves), in combination with a galvanometer and the connected series of electro gas-lamps, to test the continuity and perfection of the circuit from the station. This is done by substituting the poles of the small battery for those of the large one, and interposing the galvanometer in the general circuit. The amount of the deflection of the needle will indicate, to a considerable extent, the condition of the line.

The drawings represent an apparatus and parts of an apparatus embodying my invention. Figure 1 shows a view in perspective of the apparatus applied to two series of street-lamps: A is the battery; B is the electrotome; C is the switch; B^2 is a vertical section of the coil, core, and spring of the electrotome; C^2 is a view of the under side of the switch. Figs. 2, 3, and 4 are vertical central sectional views of three different kinds of electro gas-lamps that may be used as part of this apparatus: D is to exhibit the manner that the induction-coil of either lamp may be placed within the inducing-helix; E is a horizontal section of Fig. 2 at the line *x*, showing the armature-catch and third magnet; F is a horizontal section of Fig. 4 at the line *z*, showing a plan of the side-valve.

a a' denote the lamp-posts for any number of gas-lamps, placed, for instance, in the streets of a city. They are joined together by the circuit-wires *r w*, extending from a central station; these wires also connecting into a series the electrical machinery at each lamp-post intended for lighting and extinguishing the gas. Another series of lamps is represented at *a'' a'''*, the line or circuit wires of which are independent of those of the first series, except in that they are attached to the same switch. Any required number of such series may form a system, connected with the same switch, and operated through it. *b b'* are poles, bearing insulators *c c'* at their tops, and placed between the lamp-posts to elevate the line. *d d' d'' d'''* denote the insulators attached to each lamp-post to support and insulate the line, and to relieve the wires immediately belonging to the electro gas lamp of all strain. This is accomplished by bending the line-wire around an insulator and securing it by a clamp, or in any other way, so that the weight and tension of the line shall fall upon the insulator. The end of the line-wire is then passed up, within the lantern, to the electro gas-lamp, and soldered to the appropriate wire projecting therefrom, which is thus not liable to be broken. A proper way to attach the insulators to the lamp-posts is by means of metallic rods, which support the insulators at their ends, and are bent, as shown in the drawing, and fixed to the posts; but I do not confine myself to this or any particular method for their attachment. The last lamp of each series is or may be put into direct communication with the ground by having its exit-wires buried, and the electric circuit is then completed through the earth back to the station. *r* denotes the valve-opening and lighting wire, and *w* the valve-closing wire, of the first series of electro gas-lamps, and r^1 the opening and w^1 the closing wires of the second series.

A denotes the voltaic battery, fitted with stationary cells, and plates attached to a vertically-sliding frame, which is balanced by weights,

and can be lowered or raised as needed. Two binding-screws on
99 top of the cross-bar are the poles for the attachment of wires, one of which is in communication with the earth, and the other with the switch-arm.

B points out the electrotome or current-breaker. e^1 denotes a coil of insulated wire surrounding a brass tube, and inclosed within another brass tube, which latter has attached to its upper end, but insulated from it, the two brass rods e^2 e^3, that curve downward and pass through binding-screws, which hold the coil at any desired height above the wooden frame. An end of the coil-wire is soldered to one of these rods, and the other end to the opposite rod. e^4 is a core, consisting of a tube or rod of iron or steel, a little shorter than the interior brass tube, within which it easily slides, and is supported in position by the curved brass spring e^5. e^6 is a pin projecting downward from the core, and passing very loosely through a slot in the horizontal portion of the spring e^5; but it is prevented from being withdrawn entirely from the slot, when the core rises by the action of an electric current, by a head or nut, e^7, that, in such case, strikes a blow on the under surface of the spring, separating the platina-pointed end of the latter, e^8, from the platina-capped adjustable screw-post e^9. e^{10} is a strong magnet, either electro or permanent, with its poles near the rupture points, to aid in dispelling the extra spark when the circuit is broken. The rupture-points can also be surrounded by a cup containing alcohol or pure water, if it be deemed desirable to break the circuit beneath a fluid. The other end of the spring e^5 is firmly secured to a metal post, e^{11}. Metallic wires (partly beneath the base of the instrument) extend from a binding screw, e^{12}, to the upper binding-screw e^{13}, and from the opposite binding-screw e^{14} to the post e^{11}, and from post e^9 to binding-screw e^{15}. Posts e^9 and e^{11} are also connected beneath the base-board with a condenser, of tin-foil and varnished paper, e^{16}. The course of an electric current is or may be from e^{15} to e^9; thence through the platina junction and spring to e^{11}; thence to e^{14}, and through the brass rods and coil to e^{13}, and thence to e^{12}. If it be wished at any time to increase the sensitiveness of the electrotome an additional short electro-mgnet may be inserted in the top of the coil, and held in a fixed position by any convenient means. e^{17} is an adjustable check or stop to regulate the height to which the spring e^5 shall ascend. C denotes the switch or mechanism for transferring the battery-current from one continuous line-wire to another of the same series of lamps, and also for connecting the electrotome with one of said line-wires and the battery; and, further, for transferring the current from one series of lamps to other series, and also for connecting the same electrotome and battery with one of the continuous line-wires of each successive series of lamps. C^2 shows a bottom view of the same mechanism. t^1 is an arm of dry wood, that swings around just above a disk of dry, varnished wood, of any convenient size. This arm has on its upper surface the flat brass spring t^2, whose central end is fastened to the metallic axis of the arm, and its outer end attached to a metal pin that pierces the arm and protrudes below it far enough to make good connection with the several series of contact pins or plates I II III I′ II′ III′, placed around the upper surface of the disk. t^3 indicates another shorter spring, fastened at its middle on the arm, but insulated from the spring t^2. Each end of t^3 has attached to it a pin, penetrating through the arm, as described above, for making connection with the disk contact pins or plates IV V IV′ V′ when the arm is revolved. t^4 t^5 denote the segments containing the series of contact-pins cut from the disk, and hinged thereto, so as to be lowered out of the way of the arm

before the poles of the U-shaped electro-magnet i^{12}, as seen in F (i^{19} i^{14}). These poles penetrate through the sides of the valve-case, and are soldered in place. The slide i^5 is pivoted, or turns loosely about a pin passing through one of its corners at i^{15}. The bundle of iron wires, i^8 has
101 its ends continued by iron, first, outward horizontally, and then upward, to form the poles i^9 i^{10}. i^{16} is a helix of coarse wire and i^{17} is an induction coil of fine wire, i^{18} i^{19} being its spark-giving ends. $r+$ and $r-$ denote the entrance and exit ends for the line-wire for admitting and lighting the gas, and $w+$ $w-$ show similar ends for the extinguishing wire, its continuation forming the coil of the electro-magnet i^{12}. i^{20} is a nut securing and making gas-tight the end of the tube i^4 where it passes through the base-plate. i^{21} shows the part to be screwed on the gas-pipe from the source of supply. When the poles i^9 i^{10} are active the slide is moved toward them, and, the holes in i^3 and i^5 being continuous, the gas has free passage to the burner; but when the poles i^{13} i^{14} are active (i^9 i^{10} being now passive) the armature i^{11} is attracted against them, and the brass slide having moved also, the gas is shut off by the hole in i^3 being covered by a solid part of i^5. The residual magnetism of these poles is sufficient to hold the slide gently, and prevent any motion thereof from gravity should the lamp be considerably inclined from a perpendicular.

Having described my invention, I claim—

1. An electro-magnetic displacing-weight, g^8, combined with a catch for sustaining the raised weight, and an electro-magnet, g^{16}, for releasing it when desired, substantially as specified.

2. In combination with the helix surrounding an electro-magnet that opens by its immediate attraction a mercury-valve or a slide-valve, substantially as shown, for admitting gas to a burner, a secondary induction-coil, arranged substantially as specified, for lighting the escaping gas.

3. The slide-valve i^5, with its armatures, combined with the poles i^9 i^{10}, constructed and operated substantially as specified.

4. The combination of an electric helix around a permanent steel magnet to prevent its demagnetization with an electro-magnet to produce motion by repulsion.

5. The combination of a gas-valve with an electro magnet and a helix surrounding a permanent magnet, in such a manner that an electric current sent in a constant direction through the helix around the permanent magnet, and another current sent simultaneously through the coil of the electro-magnet, shall produce motion that will open or close the valve, according to the direction of the latter current.

6. In combination with an electric machine placed near a gas-burner to admit or exclude the gas, the use of an electrical insulator to prevent metallic connection between said machine and the gas-supply pipe, or any other non-insulated support.

7. In combination with an insulated electro gas-lamp, the use of an independent metallic connector to bring the said lamp into electric communication with the ground when required, substantially as specified.

8. In combination with one or more induction-coils, an electrotome having a permanent or electro-magnetic core, movable automatically within a fixed or adjustable electric coil, substantially as specified.

9. The headed pin e^6, attached to the axial bar e^4 and moving in the slot of the connecting-spring e^5, for rupturing the circuit, in the manner specified.

10. The combination of a source of dynamic electricity with an elec-

trotome, an electrical switch, C, and two or more series of connected electric machines at street-lamps for lighting or extinguishing the gas.

JNO. VANSANT.

Witnesses:
NATH'L WILSON,
EDM. F. BROWN.

102 Appeal to the U. S. Supreme Court.

JOHN VANSANT ET AL.
vs.
THE ELECTRO-MAGNETIC GAS LIGHT CO. } No. 3707. Equity Doc. 13.

DEC. 17, 1875.

The clerk will enter an appeal to the Supreme Court of the United States from the decision in general term passed Nov. 29, 1875.

DURANT & HOMER,
For Pl'ffs & Appellants.

DEC. 17, 1875.

Appeal entered as directed.
By the court.

103 *Clerk's certificate. Authentication of record.*

CLERK'S OFFICE,
Supreme court of the District of Columbia:

I, R. J. Meigs, clerk of the said court, do hereby certify that the writings annexed to this certificate are true copies of originals on file and of record in said office, and that said originals together constitute the record of the proceedings of said court in this cause.

Witness my hand and the seal of said court this 13th day of April, 1876.

[SEAL] R. J. MEIGS, *Clerk*,
By R. J. MEIGS, J'R, *Assistant Clerk.*

(Indorsement on cover:) No. 109. John Vansant, William A. Duncan, trustee for Susan A. Duncan, appellants, vs. The Electro-Magnetic Gas Light Company and John W. Thompson, John G. Parke, T. L. Casey, John A. Ruff, William Myers, Madison Davis, A. A. Hosmer, William Thompson, and George A. McIlhenny. District of Columbia sup. court. Filed 15th April, 1876.

1 *Certiorari & return.*

Supreme Court of the United States, October term, 1878.

JOHN VANSANT ET AL., APPELLANTS,
vs.
THE ELECTRO-MAGNETIC GAS-LIGHT CO. et al. } No. 103.

THE UNITED STATES OF AMERICA, *ss:*

The President of the United States of America to the judges of the
[SEAL] supreme court of the District of Columbia, greeting:

Whereas in a certain suit in said supreme court between John Van Sant and William A. Duncan, trustees for Susan A. Duncan, complainants, and The Electro-Magnetic Gas-Lighting Company et al., defendants, which suit was removed to the Supreme Court of the United States by virtue of an appeal, agreeably to the act of Congress in such case made and provided, a diminution of the record and proceedings
2 of said cause has been suggested, to wit, that the final decree of the court below, in the words and figures following, has been omitted from the transcript:

"This cause came on to be heard upon the record of the special term, and was argued by counsel on both sides, and thereupon, upon consideration thereof, it is ordered, adjudged, and decreed that the decree of the special term of May 25, 1875, from which the appeal to this court was prosecuted, be, and the same is hereby, affirmed with costs."

You therefore are hereby commanded that, searching the records and proceedings in said cause, you certify what omissions you shall find to the said Supreme Court of the United States, so that you have the same, together with this writ, before the said Supreme Court forthwith.
3 Witness the honorable Morrison R. Waite, Chief Justice of the said Supreme Court, this sixteenth day of October, A. D. 1878.

D. W. MIDDLETON,
Clerk Supreme Court U. S.

To the Supreme Court of the United States:

In obedience to the within writ and by command of the justices of the supreme court of the District of Columbia, to whom the same is addressed, I certify that, searching the records and proceedings of the said supreme court of the District of Columbia in the cause mentioned in this writ, I find that there are no omissions in the record of said cause already certified to the Supreme Court of the United States except a copy of the final decree of the said supreme court of the District of Columbia therein, and that the following is a true and complete copy of the said final decree, to wit:

4 JOHN VANSANT AND WILLIAM A. DUNcan, trustee for Susan A. Duncan,
vs.
THE ELECTRO-MAGNETIC GASLIGHT COMPANY, John W. and W'm Thompson, John G. Parker, T. L. Casey, John A. Ruff, W'm Myers, Madison Davis, A. A. Hosmer, and George A. McIlhenny. } 3707. Eq. Doc. 13.

This cause came on to be heard upon the record of the special term, and was argued by both sides; and thereupon, upon consideration

thereof, it is ordered, adjudged, and decreed that the decree of the special term of May 25, 1878, from which the appeal to this court was prosecuted, be, and the same is hereby, affirmed, with costs.

In testimony whereof I hereunto subscribe my name and affix the seal of said sup. c't D. C. November 1st, 1878.

[SEAL]

R. J. MEIGS,
By R. J. MEIGS, JR., *Ass't.*

5 (Endorsed:) No. 109. Oct. T., 1878. U. S. Supreme Court. Vansant et al. vs. Electro-Magnetic G. L. Co. et al. Certiorari & return. Filed 2d November, 1878.

IN THE

Supreme Court of the United States.

October Term, 1878.

JOHN VANSANT ET AL., APPELLANTS,
vs.
ELECTRO-MAGNETIC GAS-LIGHTING CO., AND NINE OTHERS.
No. 109.

Appeal from the Supreme Court of the District of Columbia.

BRIEF FOR APPELLANTS.

HISTORY OF THE CASE.

July 24, 1872, the plaintiffs were the owners of certain patent rights, and on that day they sold and assigned the same, together with all future improvements thereof, to the nine persons defendants, J. W. Thompson *et al.* In consideration of this sale and assignment the latter agreed to make, "*at their cost and expense*," to the amount of $2,500, due and reasonable trial or experiment of said [patented] apparatus, to prove the utility and practical value thereof, and pay plaintiffs $3,000 at the end of 30 days *after* such

experiment shall have been determined and declared satisfactory by the said nine defendants or their assigns; and a farther sum of $3,000 arising from and out of the profits by reason of any sale of adventure in, or contract for the use of the patents herein named. Both plaintiffs and defendants were to form a joint-stock company for the purpose of PUTTING TO USE the apparatus, with a capital of $10,000, divided into 100 shares of $100 each; 50 of these shares of stock to be issued and delivered to plaintiffs by defendants as fully paid for, and not assessable except to buy new patents or defend these from infringement. And certain restrictions were placed upon plaintiffs' rights to vote on said fifty shares. The contract contained a farther clause indemnifying the nine from any liability as against the rights of the trustee of Susan A. Duncan. *On the same day* an incorporation certificate under sec. 4, act May 5, 1870, [16 S. L., 96–153,] was executed before a notary, recorded July 26, 1872, and delivered to J. W. Thompson, July 29, 1872.

February 24, 1873, the nine sold and transferred to the corporation thus established, and named "Electro-Magnetic "Gas-lighting Company," all plaintiffs' patents, both present and future, subject to the obligations and reservations contained in the assignment of July 24, 1872, and subject also "to the true and just performance of all and singular "the obligations and agreements" in said assignment, "which said referred to reservations and obligations the "said Electro-Magnetic Gas-lighting Company shall re-"spect and fully comply with, as by said instruments of "writing the same are stated or intended."

See Record, p. 4 *et seq.*, Documents A, B, C, D.

In the *fall of* 1872 an experiment was tried at the Gas-

light Company's works of a portion of Vansant's apparatus and method—"with partial success," as plaintiffs allege; "wholly unsatisfactory to defendants," as these aver—and the defendants insist that this trial was the "experiment "referred to in said agreement." It cost $1,762.82 to December 5, 1872.

See Exhibit J. J. J., No. 3, Rec., p. 16.

December 20, 1873, another experiment was made on "K" street, which the plaintiffs declare to have been successful, and some of the defendants pronounce "quite successful," others "unsatisfactory," and add, "inasmuch as during "the experiments, which continued for thirty days, there "was no one occasion on which all the lamps along the "route described in the bill were lighted by the said plain-"tiffs' process." This is a great error.

The latter experiment cost $1,902.81 from December 24, 1872, to April 30, 1874, (see Exhibit J. J. J., No. 3, Rec., p. 16,) thus making the total amount of disbursements on all the trials, in exact figures, $3,665.70; that is, $1,165.70 over and above the $2,500 agreed upon to be expended by the contracts.

About this time the Company came to the conclusion that the patents, process, apparatus, and method of plaintiffs were without any commercial value; that it would spend no more money on trials; that it would not call upon its stockholders to pay any more money on their shares, according to the laws of incorporation, and that the Company would quietly drop out of existence unless the Attorney-General of the United States should force the Company into liquidation. The above conclusion, they aver in their answer, was reached in the fall of 1872, the date of the first experiment made at the gas-works. No such conclusion was ever communicated to the plaintiffs.

Plaintiffs then proceeded to put the Company in default. They required the defendants to "declare the experiments "a success, pay us the $3,000, issue the fifty paid-up shares, "and comply fully with your contracts and the law." This was refused. "Then return us our patents." To this the reply is: "Yes, we will; but you must first pay us the "expenses incurred, $3,665.70, to secure which we have "'a lien on said patents, and are entitled to be repaid their "'(our) said advance.'" The posts erected for a mile on "K" street were taken down, the wires all coiled up, the lamps removed, and these, together with all the patents, apparatus and tools, still remain in the possession of the Company, *out of commerce;* and though defendants claim *an equitable lien* on them as the plaintiffs' property, nothing is said on the point of *ownership* in the decree.

The present suit is brought to obtain a reassignment of the patents to the petitioners, free from incumbrance; to liquidate the corporation and for the appointment of a receiver; a decree freeing Vansant from all personal liability for any debts incurred by said corporation from and after filing the bill, and general relief.

The answer, virtually, is a denial of all legal obligation to change in any way the *status* of the Company, the patents, and the parties, until the advance for the experiments has been paid or secured by the complainants.

The decree of the chancellor was that the Company should assign and reconvey ONE UNDIVIDED HALF INTEREST in the present and *future* patents to the plaintiffs; that each party pay his own costs, and that neither party be entitled to recover costs as against the other. This decree was affirmed by the court in general term, and from this decree plaintiffs have appealed to this court.

ASSIGNMENT OF ERRORS.

1st. The lower court erred in finding either in the allegations or the proofs any evidence of "the intention of the "parties to provide for a reconveyance to the plaintiffs of "one undivided half interest in and to said letters-patent, "and in and to the rights and interests so conveyed by the "said assignments."

2d. The court below erred in not ordering the liquidation of the Electro-Magnetic Gas-Lighting Co., and appointing a receiver for this purpose, in view of the hourly violation of the act of Congress chartering the Company by the directors, and their failure either to call for the subscribed capital or to go into liquidation.

3d. The lower court erred in not protecting plaintiffs from further liability for the obligations of the Company.

4th. And in deciding that there was no rescission by the Company of their agreements, it having done all that it was bound to do, and that it not only held the original patents, but was entitled to the future patents.

5th. And that equity would not decree the return of the patents to plaintiffs even on the payment of the Company's disbursements in the trials.

ARGUMENT.

The original agreement between the parties, as shown in the document lettered A, is undoubtedly a contract of SALE. It is so averred in the bill. It is called in the answer "a complete and absolute SALE, transfer, and assign-"ment." In the decree that, "it appearing to the court "by an assignment dated July 24, 1872, the said plaintiff

"* * * SOLD, conveyed, and transferred to the defend-
"ants, * * * it is therefore ordered," &c. All the patents, present and future, taken out by Vansant "for "apparatus for lighting and extinguishing gas by elec-"tricity" form *the thing*, one of the essential constituents of this contract of sale. So far, all parties are agreed.

II.

But it was not merely a sale; but a sale on condition. A sale on trial or on approval, a sale or return, are all instances of conditional sales. Here the plaintiffs place the whole legal title [*i. e.*, the title in ownership] in the names of the nine defendants, as the very first step. This is the the exact equivalent to the *delivery* of a horse or any other movable object in commerce on trial. This assignment of the legal title is the sole consideration passing from plaintiffs which is set forth in the contract of sale in Document A. Defendants on their part contracted to *spend* "*at their* "*cost*" $2,500 in due and reasonable trial "of said ap-"paratus to prove the utility and practical value thereof," and *pay the price agreed upon* "at the end of thirty days "after such said experiment shall have been determined "and declared satisfactory by the said party of the second "part or their assigns." The nine, therefore, came into possession by virtue of the conditional sale to them for no other purpose but to enable them to "determine and de-"clare" "*the utility and practical value of the patents.*" The property in the patents would not pass to them as owners until they pronounced their satisfaction not as to the value in use of the apparatus of plaintiffs, but its value in commerce. This choice was not left absolutely to their discretion; it was not a (potestative) condition dependent upon the will of the transferees, which they could perform

or not at their pleasure. After a reasonable time they could be called on to decide on this point; in other words, be put regularly in default for non-compliance with their obligations, just as was done here. (See Thompson *vs.* Gray, 1 Wheat., 74–82.) Their refusal then and now to restore the patents or to complete the sale is based on their determination and declaration that Vansant's "processes "and inventions are wholly ineffectual, and without any "practical value whatever in an economic and industrial "sense." This declaration is affirmed in the answer as the judgment and opinion of the defendants. The patents, therefore, in their opinion, are without value; there has been no purchase by the defendants; they are our trustees, holding for us, and bound to retransfer and reassign to us the legal title, which they now illegally detain from us, unless they be justified, by other allegations in their answer, in their refusal.

Copeland *vs.* Bosquet, 4 Wash. C. C., 588.
1 Parson's Cont., p. 537, Note *o*.

III.

The position assumed by the defendants as set forth in the seventh paragraph of their answer is, that the "assign-"ment, as appears by the terms thereof, was an *absolute* "transfer and sale to the said nine individual defendants "of the rights and interests therein described." This proposition would undoubtedly be true if that extremely ambiguous word "absolute" were omitted. That the assignment aforesaid was a contract of sale, which sprung into existence on its date, and continued to exist until the determination and declaration of the worthlessness of the patents under the condition, seems indisputable. But though all parties admit the existence of the contract of

sale set forth in Document A, yet some of the obligations contained in the contract have never yet arisen, *e. g.*, the payment of $3,000 to plaintiffs at the end of thirty days; a similar sum out of the profits of the Company, or a transfer of shares of stock. The existence of a contract and the sanctity of its obligations are two very distinct things. The legal meaning of an absolute sale is that the sale is "completed" or "finished." The sale in this case is plainly not of this character.

IV.

It is then alleged that "the consideration therefor (the "absolute sale) was the expenditure by the said defend-"ants of the said sum of twenty-five hundred dollars in "the manner aforesaid."

We do not so read the contract, and this position seems to us in direct contradiction of its terms. A part of the consideration is not the whole consideration of a contract. True, the writing says that "in consideration of the "premises" (plaintiffs' vesting the legal title) "the nine do "hereby agree to make or cause to be made, *at their cost* "*and expense*, to the amount of $2,500 in expenditure, due "and reasonable trial or experiment of said apparatus, *to* "*prove the utility and practical value thereof*," &c. The expenditure appears to be part of the consideration only from the fact that it is conjoined in the document with the different parts of the true consideration or cause of the contract, and the words "in consideration" are used as equivalent to "in consequence of," and have, it is clear, no other meaning. The trial is the condition on which the sale is made; and not the consideration of the sale. The trial may fail, and so may the consideration. In this case there has been a failure in the trial, but no failure of con-

sideration. The consideration of the sale was the price, one of the inexpugnable elements of this contract. The amount expended in the trial was certainly no part of the price of the patents.

In a sale on trial, the cost and expense of the trial, if the contract be silent on the subject, fall by law upon the vendor. This is the law both on the continent and in England. Here, the contract expressly declares that these expenses shall be borne by the vendees; that, no matter how the trial results, they will pay the cost of them. This was, strictly, no essential part of the contract of sale, but merely the condition on which the sale was based. The contract of sale of the patents existed; it had vested the legal title of the thing in the purchasers; they were to pay a certain price in a certain event, at their option. They could, at their will, resolve, *i. e.*, dissolve, the contract from the beginning; but they could not call it into life.

From the facts, 1st, that the legal title was transferred by the vendors to the vendees; and 2d, that vendees were to make trial of the apparatus or patents to the extent of $2,500, it is clear that both parties desired the trial to be successful, and the sale completed; that the greatest mutual confidence was entertained; and that both facts, the transfer and the trial, were made to secure the completion of the sale. Neither the transfer of title nor the cost of experiment was any portion of the price of the patents, but a security for the faithful and sincere execution of the contract; a pledge for performance, precisely as the deposit of earnest-money in the ordinary contract of sales of merchandise. In the latter cases, the buyers have the right to decline their purchases by forfeiting their earnest-money.

Langford *vs.* Tyler, 1 Salk. Rep., 113.

To say that the expenditure for the trials was the con-

sideration of the transfer is to entirely mistake the language of the contract and the meaning of the parties.

Indeed, if we scan the matter closely, the expenditure on the trials amounted to a naked bet or wager, entirely *accidental*, *i. e.*, "collateral," to the real contract of sale. It was a collateral contract and aleatory, made by the defendants with plaintiffs: "We bet $2,500 that your patents "will be, on trial, satisfactory to us." They lost their money upon the contingency; and now pretend that our patents passed to them in full ownership, because this expenditure, *at their own cost and risk*, was the consideration of an absolute sale to them!

V.

The seventh paragraph of the answer thus continues: "The condition specified in said agreement, namely, that "the experiments to be made should be satisfactory, did "not apply to or affect said sale, but only designated the "contingency on the happening of which the said defend- "ants should be required to pay the additional sums of "money mentioned in said agreement. The defendants "admit that if said first-mentioned experiment and trial "had proved satisfactory, they would now owe the plain- "tiffs the full and entire performance of the condition in "plaintiffs' favor contained in said agreement. They deny, "however, that, according to the true meaning of said con- "tracts, the said plaintiffs are now entitled to a return of "said patent-rights without any encumbrances, lien, or con- "dition annexed thereto." They then aver ownership of the patents, present and future, "and all the improvements "in said invention," under said assignment, and claim "for "said advance and contributions, which were used in ex- "perimenting upon and in the development of said inven-

" tions, and independently of said agreements and contracts, " *a lien on said patents, and entitled to be repaid their said* " *advance.*"

The peculiar characteristic of the sale in this case is, that its continued existence depends upon the result of the trial—the declaration by the defendants that the experiments were satisfactory. If satisfactory, there was to be a sale, and defendants were to pay the price. If not satisfactory, the defendants contend there was still a sale to them; though they were not bound to pay anything in the way of price to the vendors, they were still owners; and instead of now owing plaintiffs the return of the patents, they claim to have a lien on them for *the costs of trial*, which they had expressly contracted should be made *at their own expense.*

We have here very vaguely presented, in all the mazes of equitable pleading, the very point in contest between these parties. Do the plaintiffs, either legally or equitably, owe to the defendants the reimbursement of their outlays in the trials? Are there any facts in the case that will justify the defendants in the continuous detention of the patents from the plaintiffs? To solve this question was the original object of this suit.

We understood both the chancellor and the court below to rule directly on this point, and to declare that plaintiffs owed the defendants nothing for these expenses of trials; that the idea of an equitable lien held by the defendants upon the patents was untenable; that the sale was executed as to all parties; that the defendants had not rescinded their agreements, they having done all they were bound to do, and that the Company not only held the original patents, but was entitled to the future patents; that the price of the patents was the amount of expenses paid in trials. But it "appearing to the court that it was the " intention of the parties, plaintiff and defendant, to pro-

" vide for the conveyance to the said plaintiffs of one undi-
" vided half interest in and to said letters-patent, and in
" and to the rights and interests so conveyed by said assign-
" ments as aforesaid; and that the Electro-Magnetic Gas-
" lighting Company should become the absolute owner of,
" and hold and possess absolutely, an undivided half in-
" terest in and to said letters-patent, rights and interests,
" 'it was therefore decreed that the Company reconvey this
" 'half interest to the plaintiffs.'"

With this eccentric result plaintiffs and defendants are, or ought to be, equally dissatisfied. The intent ascribed to the parties has all the attributes of "caprice, improbability, "and incredibility in the highest degree," which the Lord Justices of England predicate of monstrous intentions. After a lifetime of study, toil, and effort spent on the sub ject of lighting and extinguishing by electricity and procuring patents for his inventions and improvements, did the patentee intend to vest the absolute ownership in one-half of his patents, present and future, in the Electro-Magnetic Gas-lighting Company? For without such an intent the entire foundation for the decree disappears. Had the trials been pronounced satisfactory, then, indeed, on the payment of the price the corporation would have become the owners of all the patents, present and prospective; but plaintiffs would have been quite as clearly the owners of one-half of all the shares of the company—*i. e.*, entitled to one-half of the proceeds of a sale of all the patents on the liquidation of the Company. And on a liquidation of the Company, the chancellor, in the interest of all parties, would not permit the partition in kind among the stockholders, but would require the patents to be sold in block; for to pursue the former course would inevitably lead, in our opinion, in direct opposition to the will of the patentees, to the dedication to the public by an infinite division of the patents: that is, to their virtual destruction.

VI.

A patent-right's assignability is indefinitely divisible by the very language of the statute, R. S., 4898. An assignment of any undivided part of it makes the parties joint-owners of the whole, according to their respective proportions. By the decree in this case the parties are made joint-owners. Each owner has the right, as to his own interest in the patent, "to do what he will with his own." He, therefore, may indefinitely assign his interest, and thus constitute an indefinite number of assignees joint-owners of the patent; and thus each joint-owner will have the same precise right of ownership in the patent as the original patentee. This is a virtual dedication to the public; it enables each assignee to sell or give away a joint-ownership in the patent; it makes the possibility of any recovery for a violation of the monopoly of the patent so difficult as to deprive it of all value. How join all these assignees, indefinite in number, in an action for infringement under R. S., 4919?

Moore *vs.* Marsh, 7 Wall., 520.

The intent evidently was, on all sides, to make the proposed corporation the owner of the whole patents, in case the trial should prove satisfactory; to consolidate interests, not to impair or destroy them by division.

VII.

The defendants' purchase was conditional on trial and satisfaction. The necessary implication in such a sale on condition is, that there is no sale on the part of the purchaser if dissatisfied in the trial. The property remains in the vendor; it never *passed* to the vendee; there was never

any completed contract of sale. True, the sale *existed* as a conditional sale from its date. It was executed by the vendor; but it remained executory in the vendee until he pronounced his satisfaction or dissatisfaction. Had he been satisfied, the sale would have become executed retroactively *ab initio.* He was dissatified, and as soon as he expressed his dissatisfaction, the contract was dissolved *ab initio.* The patent-rights in this case never *passed* to defendants; they hold *under a bailment—a loan for use;* they are not vendees, but *trustees:* 1st. Because something remained to be done which never was done; 2d. Because the assignment of the paper-patents was, in this case, an assignment of the *indicia* of the property—a mere right of action; 3d. Because in case of loss, the property would perish as to plaintiffs, and had it been seized in possession of defendants on execution, it never could have been held for defendants' debts.

Elgee Cotton Cases, 22 Wall., 180.

"It is perfectly true, that where anything remains to be "done with a view to the appropriation of the thing agreed "to be sold by the seller to the buyer, it is plain that the "property will not have been intended by him to pass to "the buyer, and the property will not have passed."

Martineau *vs.* Kitching, L. R., 7 Q. B., 436–449.

The question is, whether in this contract, there being no such condition in terms expressed as that, in case the trial should prove unsatisfactory to the defendants, there should be no sale, it ought properly and reasonably to be implied. "Although a contract may appear on the face of it to bind "and be obligatory only upon one party, yet there are oc- "casions on which you must imply—although the contract

" may be silent—corresponding and correlative obligations " on the part of the other party in whose favor alone the " contract may appear to be drawn up. * * * Where a " contract is silent, the court or jury who are called upon " to imply an obligation on the other side which does not " appear in the terms of the contract must take great care " that they do not make the contract speak where it was " intentionally silent; and, ABOVE ALL, *that they do not* " *make it speak entirely contrary to what, as may be gath-* " *ered from the whole terms and tenor of the contract, was* " *the intention of the parties.*"

Churchward *vs.* The Queen, L. R., 1 Q. B., 195.

We contend that the decree in this case is a plain violation of this "sound and safe rule of construction with re- " gard to implied covenants and agreements which are not " expressed in the contract."

In all sales "on trial" of movables, the implied condition on the part of the vendee is that if not satisfied he will return the movable to the vendor, and that then there is no completed sale. The property in the thing does not pass to the vendee. If he detains the thing, he becomes liable in damages for its use by virtue of a new and implied contract. The sale was not rescinded; for this term "rescission" applies alone to a completed sale. The sale was dissolved and its existence ended; in the language of the Lord Chancellor Cairns, (Cundy *vs.* Lindsay, 3 App. Cases, 465,) the sale was "reduced and set aside."

It is very clear, now, that the decree complained of is objectionable on all these grounds:

1st. It gives greater relief to the defendants than these could have in a direct action.

2d. It makes a new contract for the parties.

3d. It is entirely opposed to the intention of the parties.

4th. It virtually destroys the monopoly of the patents, and violates the plain spirit and meaning of the U. S. patent laws.

5th. It is opposed to all the evidence in the case.

VIII.

The decree is entirely silent on that portion of the bill asking for the liquidation of the corporation, the appointment of a receiver, and the protection of the plaintiffs from further liability as one of the corporators. The implication here is irresistible that the court below was of the opinion that no relief could be granted in these respects.

It is admitted by the demurrer, contained in the answer, that the corporation is "in perpetual violation of the law "in not having their capital stock paid up, and the consequent liability of the corporation to be dissolved at any "time."

See R. S. D. C., 563, 564.

This Court uses this language in Doddge *vs.* Woolsey, 18 Howard, 341: "It is now no longer doubted, either in "England or the United States, that courts of equity, in "both, have a jurisdiction over corporations, at the instance "of *one or more of its members*," * * * "*if the acts* "*intended to be done create what is in the law denomi-* "*nated a breach of trust.* And the jurisdiction extends "to inquire into and enjoin, as the case may require that "to be done, any proceedings by individuals, in whatever "character they profess to act, if the subject of complaint

" is an imputed violation of a corporate franchise, or the " denial of a right growing out of it, for which there is not " an adequate remedy at law."

Under the admitted facts, then, there is no room for judicial discretion; if the capital stock be not paid up "within " two years from the incorporation of the Company" * * * "such corporation *shall be* dissolved."

R. S. D. C., 564.

Here the defendants not only admit the existence of the antecedent—a direct violation of the law—but with a remarkable sincerity declare that they will persist in it, and that the corporation shall not be dissolved, except on the application of the Attorney-General of the United States. "If the United States assent to this persistent and con- " tinued violation of a strictly prohibitory law, neither " Vansant nor his co-plaintiff can object, but must submit " to an indefinite accumulation of liability which cannot, " by possibility, benefit them." This is substantially the language of the defendants, and, we submit, is not applicable to this case. The charter is exactly a contract between " a company of adventurers " and the people of the United States in their national character. It is in fact no charter till the capital stock is paid up; it is a mere limited partnership, in which plaintiffs bring the use of their patents; and all the partners desire is, to limit the amount of their liability by assuming the shape and appearance of a corporation.

IX.

Our clients have much to say on the value of the patent rights, but their counsel think it an immaterial point. That all parties expected the patents to be a success, "the

" wires running under ground " is admitted, but was no part or condition of the contract. Why, at the gas-house trial, " the wires immersed in tubs of water, and subjected " to conditions as like as possible as those to which the " wires and apparatus would have been subjected had they " been placed in the streets with the wires under ground," the apparatus failed to light the entire circuit of twenty-five lamps, but only lighted eighteen, was certainly no fault of the patentee. If this trial and all subsequent trials were failures, which we deny, no fault can be laid at the patentee's door. To find fault with him is as preposterous as it would be to blame patentees for not knowing all the laws of nature. Why eighteen lamps lighted out of the twenty-five was doubtless owing to a natural law, according to which the resistance to the passage of the electricity along the insulated wire was increased in the ratio of the distance from the point of generation. For the failure of his apparatus to overcome this law, the patentee is no more faulty than the great scientist, Joseph Henry, or Lieutenant-Colonel Casey, or General Parke of the Engineer Corps, who thought Mr. Vansant's apparatus " very ingenious," and who all believed it would answer the purpose intended. And the evidence is conclusive that one part of the plaintiffs' process, and probably the most important part, namely, opening and closing the valves for the escape of the gas in each lamp, was a great success.

The opinion of the defendants that our patents are worthless is of no legal importance, and not the slightest justification for their detention. It is " the well-settled principle " that the owner of real or personal estate, and entitled to " its possession, *shall enjoy it himself;* although some " third person may choose to assert it is worth nothing,

" and that he cannot, therefore, be called upon to restore " it to its true owner."

Goodson *vs.* Monaghan, 33 Penn., 234.
See also Gordon *vs.* Richardson, L. R., 9 Ch. Ap., 221.

The action here is to dissolve a sale and for the restoration of the property sold. Contrary to all reason and precedent, the court decrees A PARTITION OF THE PROPERTY.

The defence to the action shows a desire to throw on the plaintiffs the expenses incidental to the attempt to form a company which proves abortive; but indicates no desire whatever to own an undivided half of the patents declared valueless by them.

If the trial were satisfactory, there was to be a sale; the necessary implication is—if not satisfactory, no sale. The implication of the lower court is—if not satisfactory, *the vendor is to lose one-half of the thing sold, without the slightest compensation!*

The plain ethics and simple principles of law governing this case are found in the testimony and letter of George A. McIlhenny, one of the defendants herein, on Record, pages 14 and 15.

Respectfully submitted.

DURANT & HORNOR,
Solicitors for Plaintiffs and Appellants.

WASHINGTON, D. C., *Sept.* 17, 1878.

Supreme Court of the United States.

OCTOBER TERM, 1878.

No. 109.

JOHN VANSANT ET AL., APPELLANTS,

vs.

THE ELECTRO-MAGNETIC GAS-LIGHTING COMPANY, JOHN W. THOMPSON, ET AL., APPELLEES.

MOTION TO DISMISS.

Now come the appellees, by their counsel, and move the court to dismiss the appeal in the above-entitled cause; and state:

I. That said appeal was never allowed.

II. That no citation was issued.

NATH'L WILSON,
Of Counsel.

JOHN VANSANT *et al.*
vs.
THE ELECTRO-MAGNETIC GAS-LIGHT CO. } No. 3707. Equity Doc. 13.

DECEMBER 17, 1875.

The clerk will enter an appeal to the Supreme Court of the United States from the decision in general term, passed November 29, 1875.

DURANT & HOOVER,
For Plaintiffs and Appellees.

December, 17, 1875. Appeal entered as directed.
By the clerk.

CLERK'S OFFICE,
Supreme Court of the District of Columbia:

I, R. J. Meigs, clerk of the said court, do hereby certify that the foregoing is a true copy of original entries in the order-book of said court in the case of John Vansant *et al. vs.* The Electro-Magnetic Gas-Light Co., and that the words

Appeal entered as directed.
By the court,

on the 53d page of the transcript of record in the case of John Vansant *et al. vs.* The Electro-Magnetic Gas-Lighting Company, pending the Supreme Court of the United States, being number 109, October term, 1878, should be—

Appeal entered as directed.
By the clerk.

Witness my hand and the seal of said court, this 13th day of December, 1878.

[SEAL.] R. J. MEIGS, *Clerk, S. C., D. C.*
By R. J. MEIGS, JR., *Asst. Clerk.*

SUPREME COURT OF THE UNITED STATES.

No. 109. October Term, 1878.

JOHN VANSANT *et al.*, Appellants,

vs.

THE ELECTRO-MAGNETIC-GAS-LIGHTING COMPANY, JOHN W. THOMPSON, *et al.*, Appellees.

BRIEF ON MOTION TO DISMISS.

The appeal in this case was not prayed nor allowed in open court. It was taken by an order entered by the solicitors of the complainants in the order-book of the court.

See Clerk's certificate.

It was not allowed in open court, nor at any time by any judge. No citation was ever issued to the defendants.

It does not appear from the record that any security was given or accepted. The clerk in his return to the writ of *certiorari*, heretofore issued, certifies that there are no omissions in the record previously certified, except of a copy of the final decree. In point of fact a bond was filed and approved some time after the appeal was taken.

The question presented by this motion is whether the taking and acceptance of security, not given or accepted in open court, are equivalent to the allowance of the appeal and the issue of a citation.

We understand this Court to have decided that although the approval of a bond is in effect an allowance of the appeal, yet if security is taken out of court a citation is necessary to bring in the parties, unless they appear voluntarily.

Sage *vs.* R. R. Co., 96 U. S. Reports, p. 712.

J. HUBLEY ASHTON,
NATH'L WILSON.

Supreme Court of the United States.

DECEMBER TERM, 1878.

No. 109.

JOHN VANSANT, ET AL., APPELLANTS,

vs.

THE ELECTRO MAGNETIC GAS-LIGHT COMPANY, JOHN W. THOMPSON, ET AL.,

APPELLEES.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

BRIEF FOR APPELLEES.

J. HUBLEY ASHTON,
NATH'L WILSON,
Of Counsel for Appellees.

Judd & Detweiler, Printers.

Supreme Court of the United States.

DECEMBER TERM, 1878.

No. 109.

JOHN VANSANT, ET AL., APPELLANTS.

vs.

THE ELECTRO MAGNETIC GAS-LIGHT COMPANY, JOHN W. THOMPSON, ET AL., APPELLEES.

APPEAL FROM THE SUPREME COURT OF THE DISTRICT OF COLUMBIA.

BRIEF FOR APPELLEES.

STATEMENT.

The appeal in this case is from a decree made by the Supreme Court of the District of Columbia, requiring the Electro Magnetic Gas-Lighting Company, one of the appellees, to reconvey to the appellants one undivided half interest in and to certain letters patent described in the decree.

PLEADINGS.

It is shown by the bill of complaint that the appellants being the owners of a number of patents for improvements in electro gas lighting and extinguishing apparatus, on the 24th day of July, 1872, by an instrument of writing under

seal, sold and assigned all their right, title, and interest in said patents to the nine persons who are defendants.

Record, pp. 8 and 9.

On the same day, by a separate instrument of writing, an agreement was entered into between the assignors of said patents as the party of the first part and the said assignees as party of the second part; wherein, after a recital that the party of the first part had made a *full* and *complete assignment* of all interest and right in said patents to the party of the second part, the party of the second part agreed as follows:

I. To make or cause to be made at their cost and expense to the amount of $2,500 in expenditure, due and reasonable trial or experiment of said apparatus to prove the utility and practical value thereof.

II. To pay to the said party of the first part to his own use the sum of $3,000 at the end of thirty days "*after such experiment shall have been determined and declared satisfactory* by the said party of the second part, or their assigns."

III. To pay to the said party of the first part to his own use the further sum of $3,000, out of any moneys that should be first received by the party of the second part, arising as profits by reason of any sale, of adventure in, or contract for the use of the patents therein named.

IV. To issue to the party of the first part, as he might direct in writing, fifty shares fully paid up of the capital stock of an intended joint stock company.

Record, pp. 4 and 5.

On the same day that the sale was made and the agreement entered into, (July 24, 1872,) the said Vansant and seven of the nine persons to whom the patents were assigned signed a certificate for the corporation of the Electro-

Magnetic Gas-Lighting Company, under the provisions of the act of Congress of May 5, 1870, entitled "An act to provide for the creation of corporations in the District of Columbia by general law."

Rev. Stat., Sec. 553.

Record, p. 7.

On the 24th of February, 1873, the assignees of the patents sold and transferred to said company all the right, title, and interest which they acquired in and to the inventions described, and in and to the improvements that might thereafter be made by virtue of the assignment to them, dated July 24, 1872.

Record, p. 6.

The bill then avers that although in December, 1873, a trial of the complainants' apparatus was made, "which was in every way a success," yet the defendants have refused to declare the trial a success, and have refused to make the further payment of money and to issue stock, as they had ageed to do. It is also averred that the defendants have refused to come to any equitable settlement with the complainants, and demand from the plaintiffs the amount expended in trying said experiments, as a condition precedent to the transfer to the plaintiffs of the title to said patents.

The prayers of the bill are:

I. That the defendants be required to reassign the said patent-rights to the plaintiffs free from any incumbrance, lien or condition whatever.

II. That the defendant company be decreed an unlawful corporation, and put into liquidation, and into the hands of a receiver.

III. That a judgment be rendered in favor of the plain-

tiff Vansant, freeing him from all personal liability for any debts incurred by said company.

Record pp. 3 and 4.

The answer contains a demurrer to the complainants' bill. It admits the averments of the bill as to the conveyance of the patent rights and the formation of the company. It denies that the trial of the plaintiffs' apparatus was a success. It avers that it was a distinctive feature of the plaintiffs' plan and apparatus for lighting and extinguishing street lamps as explained by the said Vansant and shown by his patents, that the wires conducting a current of ordinary voltaic electricity from lamp to lamp were to pass under ground, and that the agreements which were entered into, and the prospective business of said company, related wholly and exclusively to the practical use of an apparatus for lighting street lamps of a city by means of electricity conveyed by subterranean conductors.

It further avers that after said agreements were entered into, the sum of $2,500, mentioned therein, were contributed by the defendants and expended under the direction of the said Vansant in perfecting his invention and in the purchase of material, and that after careful and expensive preparations were made, and costly insulated wire obtained, an experiment was made at the gas works, which was in its results an *entire failure, and demonstrated that the plaintiffs' apparatus for lighting the street lamps, by means of wires passing under ground, was wholly ineffectual, and had no practical value whatever.*

It further avers that after the failure of said experiment, the defendants were induced by the representations of Vansant to advance additional sums of money, amounting in the aggregate to about $1,400, for the purpose of trying other experiments in the use of wires passing above the ground, and that this, the second experiment, was also unsatisfactory, and showed conclusively the inutility of the

the plaintiffs' apparatus, and that it could not be used in lighting the lamps of a city even if the conducting wires were suspended in the air.

It further avers that this last-mentioned experiment (which is the one particularly described and relied upon in bill of complaint) was not the trial contemplated by the agreement, as it was never supposed that an invention which required a net-work of wires elevated to the height of the lamp-post would have any practical or commercial value.

It further avers that these results released the defendants from the obligation to pay the additional sums of money specified in their agreement, and released them also from any obligation to perfect the organization of said company, and to issue stock to the plaintiffs.

It further avers that although they considered themselves under no legal obligation so to do, the defendants had repeatedly offered and were ready to reconvey said patents to the plaintiffs on the repayment of the money advanced, or to convey to them any person the plaintiffs might name, in trust, to repay the defendants the money advanced out of the first profits that might be realized from the sale of the patents.

It further avers that there are no debts or demands existing against said company.

Record, p. 13.

EVIDENCE.

No testimony whatever was taken on behalf of the complainants to show the nature or the results of the experiments made at the gas works with insulated wires, to determine whether the apparatus could be successfully used in connection with wires underground.

The complainant's evidence related exclusively to the

subsequent experiments on K street, in which elevated wires were employed.

Two witnesses only were examined on behalf of the complainants. One testified that he "was present at the lighting and extinguishing of the street lamps on K street by Vansant's apparatus, which appeared to light and extinguish very well; *that there were some four misses in the lighting and some in the extinguishing*, and that in his opinion, from what he saw, it was quite successful." The other testified that "he went over the lines on one occasion and all the lights were lighted, and *that he went over the line one night when it was raining and one-half the lights failed to light.*"

Record, pp. 14 and 15.

The inventor and patentee, Dr. Vansant, was not examined.

On behalf of the defendants the testimony of Col. Thomas L. Casey, A. A. Hosmer, and J. W. Thompson, the president of the company, was taken. They all agree in stating that it was distinctly understood and agreed by the defendants and by Dr. Vansant, that the practical value of the complainant's device depended entirely upon the practicability of employing subterranean conductors.

Col. Casey, in reply to the question whether it was in contemplation before the company was formed that the wires should pass exclusively under ground, said: "There was no suggestion that the wires should go over head, or any offer on the part of Dr. Vansant in describing his method to us to put the wires overhead, and that the trial that the company was to make was to be underground is substantiated by the fact that the wire ordered by Dr. Vansant was insulated gutta-percha wire."

Record, p. 20.

These witnesses agree in their testimony that the experiments at the gas works proved that the apparatus and the

proposed methods were failures, and were of no commercial value. Out of twenty-five lamps the greatest number that could be lighted at any one time was eighteen, twenty-five being the number requisite to light a street one mile in length.

The President of the Company testified that the experiment made at the gas works "was a failure, and was admitted to be so by Dr. Vansant," and that after that experiment failed Dr. Vansant relinquished his claim for any further personal compensation, because, as he stated, he could not justly make a charge for it after the failure.

Record, p. 24.

These witnesses further agree that after the failure of the experiments made in pursuance of the agreement, the defendants, prompted by a desire to assist Dr. Vansant and to prevent him from abandoning his scheme, suggested the experiment that was made on K street with the elevated wires.

About $1,400, in addition to the sum of $2,500 previously expended, was contributed by the company in the construction and erection of lamps, and in placing the conducting wires on K street. This experiment was also a failure.

Col. Casey testified as follows:

"A line of lamps, in extent about a mile, on the south side of K street northwest, was put up late in the fall of 1873, and did not prove a success. I watched those lamps lighting repeatedly, and on no occasion did all the lamps on the line light; usually one, two, or three near the central part of the line would not light, *and this too after a third wire, in addition to the line originally extended, had been stretched to conduct the induced electricity.*"

Record, p. 19.

The President of the Company testified that he was on K street frequently during the time when the experiments were made of the lamps, from Ninth street to near the Western Market. He says:

"On the evening of the public exhibition, for which invitations had been issued, it was not a complete success, the lamps at the corner of Thirteenth and K streets not lighting on several occasions of that evening's test. * * * The experiment on the night of which I have spoken was more successful than on any evening subsequent. *On the last evening that they were lighted I walked along the line, and found but one lamp lighted in three squares, between Fifteenth and Eighteenth streets.*"

Record, p. 25.

From the statement of expenditures offered in evidence it appears that, of the $2,500 expended by the company, $250 was paid to Dr. Vansant for his time and services in the months of August and September, 1872.

Record, p. 6.

DECREE.

Upon consideration of the bill, answer, and evidence, "it appearing to the court that it was the intention of the plaintiffs and defendants to provide for a reconveyance to said plaintiffs of one undivided half interest in and to said letters-patent, &c, * * * and that the Electro Gas-Lighting Company should become the absolute owner of, and hold and possess absolutely, an undivided half interest in said letters-patent," &c., the court decreed that the said company "assign and reconvey to the said plaintiffs, by an instrument in writing, to be approved by the court, one undivided half interest in and to said letters-patent," &c.

Record, p. 27.

This decree was affirmed by the supreme court of the District of Columbia, sitting in general term.

See return to *certiorari*.

The appeal before the Court is from this decree.

POINTS OF ARGUMENT.

I.

The contention in the court below on behalf of the defendants, the appellees here, was that the plaintiff's bill should be dismissed because a court of equity has no jurisdiction of the subject-matter of the bill, and can not grant the relief prayed for.

The bill was moreover plainly demurrable, in that it presents demands pertaining to several matters of a distinct and independent nature against several defendants.

The decree entered and now before this Court on appeal does not, therefore, conform to the views of the defendants. The defendants are quite willing, however, to accept and execute it, because it gives them security of some possible future value for the return of their expenditures, and is really not so favorable to the complainant as their previous offer to convey to him the entire interest in and title to the patents upon the repayment to them of their advances, and their further offer to convey the patents to some third person on condition that out of the *first profits realized* from the sale of the patents the money expended should be repaid.

The decree was apparently based upon the theory that the defendant company has ceased to exist, and is as fully and entirely dissolved as if declared to be so by the judgment of a competent court, and that the complainant's bill is to be considered as in effect a proceeding for the division of the assets of the corporation among the stockholders. The complainant being entitled to one half of all the capital stock of the company under the agreement referred to in the statement, the court appears to have been of the opinion that he is equitably entitled to one half of all the property of the corporation, and is therefore entitled to a conveyance of an undivided one-half interest in and to the patents which constituted the property of the corporation. It may be ad-

mitted that on the dissolution of a corporation by a judicial decree of forfeiture its assets belong to the stockholders, and a bill may be maintained by one or more stockholders for the protection of individual rights in the capital and business of the corporation.

Bacon *vs.* Robertson, 18 H., 480.

In such a proceeding for a division of assets the share that each stockholder would be entitled to receive would depend, of course, upon the number of his shares in the capital stock of the company. The owner of one-half of the stock could not be entitled to more than one-half of the property.

If, then, this suit could be considered as instituted by the complainant as a stockholder to obtain his share of the company's assets, it is plain that the decree gives to him all the relief to which he is entitled. The court even granted him relief without first requiring the institution of direct legal proceedings to have the corporation declared dissolved. It treated him as the holder and owner of one-half of all the capital stock, although no stock had ever been issued to him. It placed upon the other stockholders all the burdens created by the expenditures made by the corporation and by any existing indebtedness of the corporation, and gave to the complainant one-half of the property of the company free from any charge or liability whatsoever.

It is submitted, therefore, that the appellant has no reason to find fault with the decree appealed from, and that if the court below erred it erred in his favor and to his advantage.

II.

The appellant does not, however, base his case upon his rights as a stockholder in the company.

"The action here," as is stated in the brief filed on his behalf, "*is to dissolve a sale and for the restoration of the property sold.*"

Brief for Appellant, p. 19.

It is insisted in the same brief that "*there has been no purchase by the defendants;*" that they are "trustees holding for the appellant, and are bound to retransfer and reassign to him the legal title." Brief, p. 7.

The grounds upon which this right is asserted appear to be that although the patent-rights in question were conveyed to the individual defendants by a bill of sale absolute and unconditional on its face, yet the intention of the parties really was to make a conditional sale by which the property sold was to remain in the vendor until certain acts should be performed by the buyers.

It is said that this intention is manifest on considering the terms of the contemporaneous agreement referred to in the foregoing statement, by which it is provided that certain moneys shall be expended by the individual defendants in making trial and experiment, and that "after such experiment shall have been determined and declared satisfactory" by the buyers, certain other payments shall be made and stocks issued to the vendor. These provisions are said to mean that the patents were not to pass to the buyers until they had determined and declared the utility and practical value of the inventions, and that as they, the buyers, had refused to admit and declare their utility and value, the patent rights still belong to the vendor, and there is an *implied obligation* on the part of the buyers to reconvey to him.

The argument, therefore, is that the sale, being a conditioned and not an executed one, a sale "on trial" or "approval," or "a sale or return," no property passed, and that although more than two years elapsed after the transfer and delivery of the patent rights before the bill was filed, a court of equity can and should decree their reassignment to the vendor.

If it were true, as is alleged on behalf of the complainant, that the property in the patents never did pass to the defendants, that fact would not constitute a good ground for

an application to a court of equity for the restitution of the property, as will be hereinafter urged.

As a matter of law, however, and as a matter of fact, the title to the patents did pass to the defendants, and is absolutely vested in them.

a. In the first place, if the complainants and defendants had inserted in their contract an express covenant to return the patents in default of the payment of the three thousand dollars specified, and the issue of the stock described, the execution and delivery of the assignments, the possession of the patents, and the payment or expenditure of the $2,500 would have effected the absolute transfer of the title.

When the owner of a chattel sells and delivers it to another, and receives from him a part of the consideration, and accepts a promise to pay the balance on a day specified, *or to return* the chattel, the title passes unconditionally to the purchaser.

Story on the Law of Sales, sec. 313.
Benjamin on Sales, sec. 597.
Kinnie *vs.* Bradlie, 117 Mass., 321.
Martin *vs.* Adams, 104 Mass., 262.

In this last case the court said that the agreement of B to make payment at a stipulated time, *or return the property* in good condition, free from debts, &c., does not imply that he is to have no title in the meantime, and that such an agreement was a present sale.

b. If, in the second place, the sale to the defendants was a sale, on approval, as is contended, the retention of the property sold, and the failure to return it within the time specified, or within a reasonable time, operated to make the sale absolute.

This certainly is elementary law.

c. There is, however, no justification whatever for the

assumption that the parties to the agreement intended that the sale should be "on trial," or "a sale or return." Nothing appears on the face of the assignments themselves to indicate that the title was not to pass until the happening of some future event, nor is there anywhere in the proofs one particle of evidence that the ownership and possession by the buyers was to be in any way qualified. The terms of the assignment are perfectly plain and explicit, and exclude such a supposition. The buyers agreed to pay certain sums of money, and to issue certain shares of stock, provided they were satisfied by actual experiment of the value of the invention. They did *not* agree to return the property if the experiment was not in their opinion satisfactory. Neither did they intend to pay the same price for the patents if the trial was unsuccessful as if successful.

In the case of Thompson *vs.* Russey, 50 Ala., 329, an agreement quite similar to the one now under consideration was construed by the supreme court of Alabama.

A written contract for the sale of two horses, signed by the vendor and the purchaser, provided that the latter "has this day bought a pair of bay horses, conditionally, for the sum of $500—$300 to be paid down in cash, and the other $200 when the purchaser is satisfied that the horses are sound."

In an action by the vendor against the purchaser on common counts and for breach of special contract, the court held that *as the law does not infer that a party agrees to do more than his contract expresses*, in the absence of an express stipulation so to do, the purchaser was not bound to pay the additional $200, if one of the horses were unsound, nor to notify the vendor of the discovery of the unsoundness, nor to offer to return the horses, or to rescind the contract in whole or in part.

d. The argument, therefor, that the complainant is enti tled to the equitable relief prayed for because the property

in the patents never passed to the buyer is not supported by the evidence in the case, and is inconsistent with well settled principles of law applicable to the ascertained facts.

III.

The property in the patents did pass to the buyers by the assignment, and the case presented by the bill is that of an alleged refusal by a purchaser to comply with the conditions of a contract of sale.

It is alleged that the trial provided for in the agreement was successful, and yet that the purchasers refuse to pay the money that is payable, and to issue the stock that is issuable upon the trial proving satisfactory.

If this be so, the claimant's remedy is by an action at law for breach of contract.

The vendor who has agreed to take for what he sells a certain sum of money, and the buyers promise to pay certain other sums and to do certain other acts, cannot, if the buyer does not pay as agreed upon, treat the sale as at an end and reinvest the property in himself; but his remedy is at law, in action for the price and for damages for the non-payment thereof.

Benjamin on Sales, p. 764.

IV.

It is certain, however, that the agreement between the vendors and the purchasers was that the purchasers should expend not less than $2,500 in making due and reasonable trial of the vendor's invention. If the trial was satisfactory to them, then they were to pay other moneys.

The right to determine and declare the result of the trial was conferred expressly and exclusively upon them.

They faithfully made expenditure of the specified sum and of about $1,400 in addition. The expenditures were applied in part to the vendor's personal support and in part

to experiments which resulted in improvements, some of which were afterwards covered by a patent which was issued to the vendor alone.

There can be no doubt that the experiments demonstrated the inutility of the apparatus. The testimony of the President of the company, and that of Colonel Casey show conclusively that notwithstanding the zealous aid and co-operation given to the inventor, and notwithstanding the change made in the nature of the trial, the inventor's contrivance for lighting and extinguishing the street lamps by electricity was for all practical purposes a failure.

The result was that at a cost of about $4,000 the company was the owner of a number of patents of no commercial value.

Upon what principle of equity can it be claimed that under these circumstances the vendor is entitled to the aid of a court of equity in obtaining the unconditional transfer to him of the patents, and in inflicting upon the purchasers the total loss of their investment?

If this were a proceeding (which it is not) for the recission of the contract of sale on the ground of fraud, mistake or failure of consideration, equity would not interfere unless both parties could be restored to the condition in which they were when the contract was entered into.

If any ground for the exercise of equitable jurisdiction exists in this case, (which we deny,) the maxim would still apply, that he who seeks equity must do equity; and it would be obviously and grossly inequitable to give the patents in question back to the vendor unless their payments were at the same time refunded to the purchasers. More than this the purchasers have never asked.

V.

The complainant is not entitled to have the corporation

defendant declared an unlawful corporation, or put into liquidation or into the hands of a receiver.

The general jurisdiction of equity does not extend to the power of dissolving a corporation. For the *non-user* or misuser of its franchises the remedy against a corporation is by a direct proceeding in the nature of "*quo warranto.*"

Field on Corporations, p. 452.

It is averred in the answer, and no evidence to the contrary has been offerd, that the corporation owes no debts. In a proper proceeding, or, if it were proper for the court so to decree in this case, the defendants would have no objection to a decree absolving the complainant from all liability for the debts of the corporation.

VI.

The decree of the court below should be affirmed. If reversed, the case should be remanded with directions to dismiss the bill.

J. Hubley Ashton,
Nath'l Wilson,
Of Counsel for Appellees.